No. 1. — *Scientific Results of a Fourth Expedition to Forested Areas in East and Central Africa*

I

Mammals

By Glover M. Allen and Arthur Loveridge

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INTRODUCTION

The collection on which the following report is based, was made by the junior author while investigating the herpetological fauna of certain forested regions in East and Central Africa. The enquiry was carried out on behalf of the Museum of Comparative Zoölogy with a fellowship granted by the John Simon Guggenheim Memorial Foundation of New York.

As in previous reports, the identification and taxonomic work have been done by the senior author whose conclusions appear under the heading *Discussion.* The field notes, contributed by the junior author, are included under: *Breeding, Diet, Parasites, Enemies, Native names, Measurements,* etc.

When measurements are given serially, they are always in the following order: (1) length from snout to anus; (2) length of the tail without terminal hairs; (3) length of hind foot without claws; (4) length of ear from tip to notch. In the case of bats a fifth measurement is added: (5) length of wing from axilla to tip. All dimensions are in millimetres, and, unless otherwise stated, it is those of the *largest* male and *largest* female of the series which are supplied.

The period of collecting mammals was from November 4, 1938, to July 25, 1939, during which time, and exclusive of nearly 200 bat and embryo alcoholics, 612 skins and skulls representing 116 species or races of mammals were secured. Of these, 40 forms were new to the

collections of the Museum of Comparative Zoölogy. A very high percentage of these were topotypes of species described from the Ruwenzori Mountains. As much of this collecting was carried on near the frontiers of Uganda and Tanganyika, it has resulted in the addition of many species to the known fauna of these two countries.

It has been found necessary to describe as new the following subspecies:

Mops angolensis orientis from Kitaya, Tanganyika Territory.
Phataginus tricuspis mabirae from Mabira Forest, Chagwe, Uganda.
Funisciurus pyrrhopus victoriae from Kibale Forest, Toro, Uganda.
Thamnomys venustus kivuensis from Idjwi Island, Belgian Congo.
Leggada bufo ablutus from Idjwi Island, Belgian Congo.

Altitudes, and detailed information regarding the localities in which collecting was carried on, will be published in the final report of this series, but as considerable time is likely to elapse before its publication, a map (see pl. 1) is furnished giving their approximate position. However, many of the forests are of considerable size; Mabira, for example, covers some 120 square miles; so below, in parenthesis, is given the name of the actual camping site — unlikely to be found on any map — and other information likely to be helpful.

Uganda: Budongo Forest (Bisu); Bugoye (E. foothills of Ruwenzori); Bundibugyo (N.W. foot of Ruwenzori); Butiaba (N.E. shore of L. Albert); Fort Portal (Provincial headquarters of Toro); Jinja (N. shore of L. Victoria); Kibale Forest (same as the Mpanga Forest of the Ruwenzori Expedition 1905–6, but Woosnam crossed the Mpanga River about 10 miles north of where Loveridge camped near Isunga); Mabira Forest (Mubango); Mihunga (Loveridge camped on the actual site of the Ruwenzori Expedition's camp, called by them Mubuku Valley, 6000–7000 ft.); Mubuku Valley (Mobuku River on latest Uganda Survey map is admittedly wrong, though map spelling was followed on Loveridge's labels, the other rendering, having appeared in zoological literature, is adhered to here. In this connection it might be pointed out that the type locality of "Ruwenzori East" used by Thomas in his earlier papers, is synonymous with Mubuku Valley between 6000 and 10,000 feet, as will be seen by consulting the final report (1910) in Trans. Zool. Soc. London, **19**). In citing these type localities, therefore, for "Ruwenzori East" we have substituted Mubuku Valley and the precise altitudes, the lowest of which corresponds to Loveridge's 'Mihunga'. Mushongero (Mushungero on labels, but here again, as former spelling has been used in zoological papers by

Pitman, it is followed here. Mushongero is a village on the N.E. shore of L. Mutanda, Kigezi); Nyakabande (a rest camp on the Kabale-Rutschuru road, Kigezi).

Tanganyika Territory: Amboni Estate (near Amboni village about 15 miles N. of Tanga); Kitaya (on Rovuma or Ruvuma River, about 20 miles inland); Lake Rutamba (or Lutamba, about 20 miles S.W. of Lindi); Lindi (seaport); Magrotto Mountains (20 miles from Usambara Mountains; camped on Magrotto Estate at edge of forest); Mbanja (10 miles north of Lindi, camped on landing field); Mikindani (on hill 3 miles N. of township); Nchingidi (in forest on Rondo Plateau, about 50 miles S.W. of Lindi); Siga Caves (about 10 miles N. of Tanga, *not* Sigi at foot of Usambara); Tanga (at hotel, before sailing).

Kenya Colony: Mainland opposite Kilindini ferry (collected near ferry landing).

Belgian Ruanda: Kisenyi (N. shore of L. Kivu, camped on roadside at Kiraga 3 miles N. of Kisenyi).

Belgian Congo: Idjwi Island (Kwidjwi, camped on upper reaches of Mulinga River, *circa* 4500 ft.).

A selection of duplicates of such species as were collected in the Belgian Congo and Ruanda, are to be sent to the Congo Museum, Tervueren, in appreciation of the action of His Excellency the Governor of the Congo Belge in granting a permit to collect during the month spent in these countries.

We also take this opportunity of thanking our colleague Dr. Joseph Bequaert for his kindness in identifying the ectoparasites recorded in this paper, Dr. H. R. Hill of Los Angeles Museum for naming linguatulids, also Dr. B. Schwarz and Dr. J. T. Lucker of the United States Department of Agriculture for similar courtesies regarding helminths, and the Rev. Lyndon Harries for eliminating some plural prefixes of native names obtained in southeastern Tanganyika.

For permission to use the blocks of plates 2 and 5, we are indebted to the Editor of the *Scientific Monthly* in which journal (June and July, 1940) they appeared as illustrations to a popular account of the safari.

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Systematic Discussion

MACROSCELIDIDAE

Rhynchocyon petersi melanurus Neumann

Rhynchocyon petersi melanurus Neumann, 1900, Zool. Jahrb., Syst., **13**, p. 542: Lindi, Tanganyika Territory.

♂ ♀ (M. C. Z. 38781–2) Nchingidi, T. T. 20. v. 39.

Discussion. Nchingidi, on the Rondo Plateau, lies about fifty miles by road and trail southwest of Lindi. These specimens, therefore, are nearly topotypes, and agree with Neumann's brief diagnosis. The nape and sides are of a rich chestnut, the lower back is much darkened with black. In both, however, may be made out in certain lights the two longitudinal black stripes lying one on each side of the mid-dorsal line, but in one the outer border of each stripe has plainly the series of indentations which in the race *macrurus* partly enclose squarish black spots. The tails have nearly the terminal third white all round, with a small black tip, as mentioned by the describer.

Rhynchocyon petersi macrurus Günther

Rhynchocyon macrurus Günther, 1881, Proc. Zool. Soc. London, p. 163: Rovuma River, 8° S., Tanganyika Territory.

♂ (M. C. Z. 38783) Kitaya, Rovuma River, T. T. 4. iv. 39.

Native names. Litotwe (Kiyao); *norda* (Kimakonde).

Discussion. A single immature specimen from Kitaya may be taken as typical of this elephant-shrew, which is obviously a form of *R. petersi*, and represents more nearly the most primitive condition of the color pattern. The head forward from the crown is a mixture of ochraceous and black; the nape is chestnut with a narrow black median line; the flanks, hips, and belly are chestnut. On the back the pattern of stripes is evident, and unobscured by black. On each side of the midline is a series of squarish chestnut spots, connected on the median side by a slightly darker stripe, the two of opposite sides meeting at the base of the tail. External to this stripe are two more, the upper consisting of some half a dozen alternating chestnut and ochraceous spots, the lower (outer) of smaller and slightly paler spots. The space between the side stripes is a mixed ochraceous and black like the forehead. The pattern thus somewhat resembles that of the checker-backed shrews, but the ground color is chestnut instead of grayish. Evidently the

typical *R. petersi* is a form in which the original checkered pattern is completely obscured by the black back.

Measurements. ♂ juv. 183. 170. 60. 22 mm.

Petrodromus sultani sultani Thomas

Petrodromus sultan Thomas, 1897, Proc. Zool. Soc. London, p. 435: Mombasa, Kenya Colony (misprint of specific name corrected 1898).

♀ (M. C. Z. 38788) Amboni Estate, near Tanga, T. T. 21. vi. 39.

Measurements. ♀. 200. 160. 53. 34 mm.

Diet. Termites only in the stomach so far as could be seen.

Remarks. With my spotlight focussed on its large red eyes, I saw one of these elephant shrews repeatedly kicking its left hind leg on the dry leaves, apparently a nervous action of alarm like the stamping of a rabbit.

Petrodromus rovumae Thomas

Petrodromus rovumae Thomas, 1897, Proc. Zool. Soc. London, p. 434: Rovuma River, 100 miles inland, Tanganyika Territory.

♀ (M. C. Z. 38785) Mbanja, T. T. 6. v. 39.
2 ♂ 1 ♀ (M. C. Z. 38784, 38786–7) Nchingidi, T. T. 16–20. v. 39.

Native name. *Ntotwe* (Kimakonde).

Discussion. The females are much buffier below, as Hollister (1918, p. 29) has noted. A male (M. C. Z. 38784) has a few knobbed bristles on the underside of the tail.

Measurements. ♂. 185. 187. 51. 44 mm., ♀. 160. 161. 52. 38 mm.

Remarks. The Wakonde at Mbanja employed a bag net to capture this giant shrew.

SORICIDAE

Sylvisorex granti granti Thomas

Sylvisorex granti Thomas, 1907, Ann. Mag. Nat. Hist. (7), **19**, p. 118: Mubuku Valley, Ruwenzori Mountains, Uganda, 10,000 ft.

1 ?, 1 ♀, 2 yng. (M. C. Z. 39307–10) Mihunga, U. 28. xii. 38 & 14. i. 39.

Native name. *Mususu* (Lukonjo).

Measurements. ? sex. 66. 52. 11. 7 mm., ♀. 63. 57. 11. 6 mm., young 40. 31. 9. 5 mm.

Breeding. As we were engaged in demolishing the stump of a wild banana, already wrecked by elephant, at the edge of a swamp in the

Mubuku Valley, but at 6,500 feet, the female shrew appeared running round the base of the plant while pulling two young after her. Each of these young was attached by one of the four nipples situated very far back between the hind limbs (14.i.39).

Myosorex blarina Thomas

Myosorex blarina Thomas, 1906, Ann. Mag. Nat. Hist. (7), **18**, p. 139: Mubuku Valley, Ruwenzori Mountains, Uganda, 10,000 ft.

♂ (M. C. Z. 39269) Idjwi Island, B. C. 2. iii. 39.

Native name. *Mushushu* (Lulega).

Discussion. This single skin from an island in Lake Kivu agrees in its blackish color and short tail with Thomas and Wroughton's figure, and is an interesting record for a species hitherto known from the Ruwenzori Mountains.

Measurements. ♂. 67. 40. 14. 9 mm.

Crocidura nyansae kivu Osgood

Crocidura flavescens kivu Osgood, 1910, Ann. Mag. Nat. Hist. (8), **5**, p. 370: Lake Kivu, Belgian Congo.

♀ (M. C. Z. 39198) Bugoye, U. 23. i. 39.

Discussion. This race, slightly smaller and more richly colored than the typical form, has previously been reported from Ruwenzori at altitudes of from 5000 to 7000 feet.

Measurements. ♀. 130. 74. 18. 10 mm.

Remarks. Taken at the rest camp in the Ruwenzori foothills, in a rat trap baited with bread!

Crocidura hirta hirta Peters

Crocidura hirta Peters, 1852, Reise nach Mossambique, Säugeth., p. 78, pl. xviii, fig. 2: Tette, Mozambique.

1 ♀ (M. C. Z. 38796) Kitaya, Rovuma River, T. T. 28. iii. 39.

5 ♂ 7 ♀ (M. C. Z. 38792–5, –98–801, –819–22) Mikindani, T. T. 11–20. iv. 39.

1 ♂ 1 ♀ (M. C. Z. 38789, 38797) Mbanja, near Lindi, T. T. 27. iv–11. v. 39.

3 ♀ (M. C. Z. 38790–1, 38796) Nchingidi, Rondo, T. T. 17–19. v. 39.

1 ♂ (M. C. Z. 39064) Lindi township, T. T. 1. vi. 39.

Native names. *Chanyunga* (Kimwera); *nanyunga* (Kimakonde at Mikindani); *ntavara* (Kimakonde at Mbanja).

Discussion. In this series from southeastern Tanganyika, the second and third small unicuspids are practically equal in size in both crown area and profile view. The skins show the variations described by Dollman (1915, p. 71): they are grayer in immature animals, but cinnamon or chocolate brown in those with pelage fully grown, variations formerly believed to indicate different species. The lateral gland in both sexes, when adult, is usually marked by a lengthwise spot of appressed hairs.

Measurements. Largest ♂. 110. 64. 15. 11 mm., ♀. 100. 62. 15. 11 mm. Both from Mikindani.

Breeding. On March 28, at Kitaya, an 85 mm. female and her single newborn naked young found lying on damp earth beneath a pile of weeds at the edge of a rice swamp; a surprisingly damp situation but teeming with insect life. On May 1, at Mbanja, a nest containing a single naked nestling. On May 3, another nest held four young, the largest of which measured 55. 13. 10. 5 mm. (alcoholics).

Enemies. One recovered from the stomach of a cobra (*Naja n. nigricollis*) and a young one from a burrowing viper (*Atractaspis bibronii*), both at Mbanja.

Crocidura hirta velutina Thomas

Crocidura velutina Thomas, 1904, Ann. Mag. Nat. Hist. (7), **14**, p. 237: Usambara Mountains, Tanganyika Territory.

11 ♂ 10 ♀ (M. C. Z. 39066–8, 39078–95) Amboni Estate, T. T. 19–21. vi. 39.

♀ (M. C. Z. 39065) Magrotto Mountain, T. T. 1. vii. 39.

Native name. *Keke* (Kisambara).

Discussion. Although Dollman (1915, p. 79) in his review of the genus, gives *C. velutina* the rank of a distinct species, these specimens from northeastern Tanganyika are so closely related to both *C. hirta* and *C. hindei*, there seems no doubt that it is actually but a slightly marked race of the former, with which it agrees in size and color, but differs in that the third upper unicuspid is usually distinctly smaller than the second in side view. We therefore give it doubtful subspecific standing. In one individual (M. C. Z. 39092) it is missing on the left side. Magrotto Mountain is but twenty miles from the type locality, Amboni village about fifty.

Measurements. Largest ♂. 110. 60. 15. 11 mm., ♀. 101. 56. 14. 11 mm. Both from Amboni.

Habitat. The entire Amboni series were living in piles of vegetable debris in a sisal plantation, and were captured when a tractor was engaged in demolishing the piles and spreading them over the ground. The Magrotto shrew was sleeping beneath a bundle of sedges in a swamp.

Crocidura sacralis Peters

Crocidura sacralis Peters, 1852, Reise nach Mossambique, Säugeth., p. 82, pl. xviii, fig. 3: Cabaçeira Peninsula, Mozambique.

1 ♂ 2 ♀ (M. C. Z. 38921–2, 39060) Lindi, T. T. 31. v. 39.

Discussion. The three specimens agree closely with the description of this species originally named from Mozambique. The grayish-cinnamon back, and grayish-white belly are much paler than the coloration of *C. hildegardeae;* the tail is slightly shorter than the head and body; the skull is longer (21 mm.) and the large anterior cusp on the last upper premolar is much reduced so that it is hardly noticeable as a low cingulum.

Measurements. Both ♂ and ♀ ♀. 75. 40. 14. 5 mm.

Habitat. All taken under bundles of thatching grass in native town.

Crocidura hildegardeae hildegardeae Thomas

Crocidura hildegardeae Thomas, 1904, Ann. Mag. Nat. Hist. (7), **14**, p. 240: Fort Hall, Kenya Colony.

1 ♂ 3 ♀ (M. C. Z. 40739–42) Kisenyi, B. R. 10. ii. 39.
2 ♂ 2 ♀ (M. C. Z. 40735–8) Idjwi Id., B. C. 21. ii & 2–3. iii. 39.

Native name. Mushushu (Lulega).

Discussion. The small size, gray belly, uniformly dark tail, small foot (13 mm. with claws), the skull of 19–20 mm. total length, upper tooth row 8–8.5 mm., distinguish this species, which is widespread in East Africa. In their dull, dark-brown color these specimens agree with others from Kenya Colony and Tanganyika Territory.

Hollister (1918, p. 64) has shown that the various described forms from eastern Africa are possibly unrecognizable as distinct races and that very probably the name *gracilipes* Peters should replace *hildegardeae* of Thomas.

Measurements. Largest ♂. 70. 50. 13. 8 mm., ♀. 80. 49. 13. 8 mm. Both from Idjwi Id.

Breeding. The Kisenyi series, all taken in one nest, evidently consist of a mother (♀. 65. 48. 12. 6 mm.) and her family, of which the male measured 57. 45. 12. 6 mm.

Enemies. One recovered from the stomach of a sedge viper (*Atheris nitschei*).

Crocidura bicolor elgonius Osgood

Crocidura bicolor elgonius Osgood, 1910, Ann. Mag. Nat. Hist. (8), **5**, p. 369: Kirui, Mt. Elgon, Kenya Colony.

♀ (M. C. Z. 39207) Butiaba, U. 5. xii. 38.

Discussion. This specimen is of the same slaty brown as one from Kaimosi, Kenya Colony, and has a skull length of 16 mm.

Measurements. ♀. 65. 46. 9. 7 mm.

Habitat. Under rotting vegetation at the edge of a swamp.

Crocidura bicolor ?hendersoni Dollman

Crocidura bicolor hendersoni Dollman, 1915, Ann. Mag. Nat. Hist. (8), **15**, p. 517: Nyasaland.

1 ♂ 2 ♀ (M. C. Z. 38802–4) Mbanja, T. T. 27. iv. 39.

Native names. Ntawara (Kimakonde at Mbanja).

Discussion. In color these three skins are barely distinguishable from the Butiaba specimen in being less slaty, but distinctly cinnamon brown above, with whitish instead of dusky feet. The skulls measure 17 mm. in length; front of incisor to back of large premolar, 5 mm.; hind foot small, 8 mm. They may represent the race *hendersoni*.

Measurements. ♂. 52. 40. 8. 8 mm., ♀. 58. 35. 8. 8 mm.

Habitat. All taken together, according to the native who brought them in.

Crocidura littoralis Heller

Crocidura littoralis Heller, 1910, Smithsonian Misc. Coll., **56**, No. 15, p. 5: Butiaba, east shore Albert Nyanza, Uganda.

2 ♀ (M. C. Z. 39270–1) Idjwi Id., B. C. 28. ii. & 3. iii. 39.

Native name. Mushushu (Lulega).

Discussion. These two shrews agree with Heller's description in their dark slaty color and faint brownish cast, as well as in having but few scattered bristle hairs on the tail. The skulls agree in their larger size as compared with *niobe* of Ruwenzori, having a total length of 24 mm. in the adult with a tooth row of 10.5 against 20 and 8.2, re-

spectively. This record involves a considerable southward extension of the known range.

Measurements. ♀ ♀ . 88, 82 mm., 65, 61 mm., 17, 15 mm., 10, 5 mm.

PTEROPIDAE

Eidolon helvum helvum (Kerr)

Vespertilio vampyrus helvus Kerr, 1792, Linnaeus's Animal Kingdom, **1**, pt. 1, pp. xvii, 91: No locality.

♀ (M. C. Z. 39197) Mihunga, U. 12. i. 39.

Native names. Kakorokombi (Lukonjo), *chugugu* (Lutoro).

Breeding. Held a large fetus whose head measured 35 mm.

Habitat. Shot from a group of about fifty which we disturbed in a clump of dracaena in the ravine immediately below our camp on Ruwenzori. On returning to the (palms) the others clambered up among the tangle of drooping, withered leaves.

Epomophorus wahlbergi wahlbergi (Sundevall)

Pteropus wahlbergi Sundevall, 1846, Öfversigt af Kongl. Svenska Vet.-Akad. Förhandl., **3**, No. 4, p. 118: Near Fort Natal and in interior of Caffraria.

♀ (M. C. Z. 38840) Mikindani, T. T. 15. iv. 39.

Native names. N'nema (Kimakonde), *nema* (Kimwera).

Measurements. ♀ . 123. 0. 20. 25. 280 mm.

Remarks. Taken in the bat net together with a *Triaenops afer;* the latter was not noticed when at daybreak I transferred the section of the net holding the fruit bat to a cyanide tin. On removing it half an hour later, the fruit bat was found to be dead but much bitten about the breast by the *afer*, which was still alive. It seemed a strange coincidence that in a net of 60 feet by 8 feet the only two bats captured should be taken at the same spot!

Rousettus angolensis (Bocage)

Cynonycteris angolensis Bocage, 1898, Jorn. Sci. Lisboa, (2), **5**, pp. 133, 138, fig.: Pungo Andongo; Cahata; Quibula, Angola.

1 ♂ 8 ♀ (M. C. Z. 38963–71) Magrotto Mtn., T. T. 11. vii. 39.

Native name. Ndema (Kisambara, but not specific).

Discussion. This bat is a member of the subgenus *Lissonycteris.* The short tibia, about 30 mm., short tail, and wing attached to the back of the second toe, readily distinguish this species from *R. leachi.*

The skull length of M. C. Z. 38963 is only 39 mm., or slightly smaller than that given by Andersen (42. 5–44).

Measurements. ♂. 125. 20. 21. 23. 261 mm., ♀. 137. 20. 21. 23. 265 mm.

Parasites. All were swarming with nycteribiids (———— ————).

Habitat. One was netted at the forest edge, all the rest were taken at the entrance of Kitulwe Cave, higher up the mountain.

EMBALLONURIDAE

Coleura afra (Peters)

Emballonura afra Peters, 1852, Reise nach Mossambique, Säugeth., p. 51, pl. xii, pl. xiii, figs. 18–19: Tette, Mozambique.

5 ♂ 5 ♀ (M. C. Z. 38923,–47–53,–90–91) Siga Caves, T. T. 8. vi. 39.
19 ♂ 3 ♀ (alcoholics) Siga Caves near Tanga, T. T. 8. vi. 39.

Measurements. ♂. 63. 17. 9. 18. 145 mm., ♀. 64. 18. 9. 16. 150 mm.

Habitat. All netted at the entrance to one of the smaller caves.

Parasites. An arachnid-like dipteron (———— ————) on one.

Enemies. One recovered from the stomach of a bat hawk (*Machaerhamphus anderssoni*).

Taphozous mauritianus mauritianus Geoffroy

Taphozous mauritianus E. Geoffroy, 1818, Description de l'Egypte, **2**, p. 127: Mauritius.

1 ♂ 2 ♀ (M. C. Z. 38837–9) Mbanja, T. T. 28. iv. 39.

Native name. *Kiputiputi* (Kimakonde, but not even generic).

Measurements. ♂. 85. 24. 11. 16. 190 mm., ♀. 87. 24. 13. 18. 190 mm.

Parasite. A nycteribiid (———— ————).

Habitat. Abundant on coconut palms, living in pairs.

NYCTERIDAE

Nycteris aethiopica oriana Kershaw

Nycteris oriana Kershaw, 1922, Ann. Mag. Nat. Hist. (9), **10**, p. 179: Chiromo, Shire Valley, Nyasaland.

♀ (M. C. Z. 38818) Mbanja, T. T. 27. iv. 39.

Native name. *Kiputiputi* (Kimakonde, but not even generic).

Discussion. This specimen agrees fairly well with the description of this race: tragus crescentic, forearm 51 mm., tibia and extended foot 35 mm., skull length 22 mm. The record involves an eastward extension of the range.

Measurements. ♀. 61. 60. 11. 30. 160 mm.

Nycteris thebaica subsp.

12 ♂ 1 ♀ (M. C. Z. 38805–17) Mbanja, T. T. 4. v. 39.

Discussion. This series includes two full-grown but dark immature individuals. All agree in cranial characters and measurements with *N. thebaica* and possibly represent the race *aurantiaca* de Beaux, described from the Northern Guaso Nyiro, Kenya Colony. They are drabby brown above, and dull grayish below with a clearer ochraceous-tawny tint on the sides of the neck.

Measurements. ♂. 55. 51. 8. 35. 133 mm., ♀. 55. 51. 8. 34. 141 mm.

RHINOLOPHIDAE

Rhinolophus hildebrandtii hildebrandtii Peters

Rhinolophus hildebrandtii Peters, 1878, Monatsb. Akad. Wiss. Berlin, p. 195, pl. i, figs. 1–1a: Ndi, Teita, Kenya Colony.

♂ (M. C. Z. 38823) Mbanja, T. T. 4. v. 39.
♂ (M. C. Z. 38982) Magrotto Mtn., T. T. 11. vii. 39.

Discussion. As pointed out by Hollister (1918, p. 84), the larger size readily distinguishes this species from *R. eloquens* (forearm 56 mm.) which it in general resembles.

Measurements. ♂. 112. 44. 13. 39. 185 mm., from Mbanja.

Habitat. The Mbanja bat, together with the series of *Nycteris thebaica* listed above, was captured by netting the doorway of a small basement room in the ruins of Chief Masudi's father's home on a mangrove-grown estuary.

Rhinolophus fumigatus exsul K. Andersen

Rhinolophus fumigatus exsul K. Andersen, 1905, Ann. Mag. Nat. Hist. (7), **15**, p. 64: Kitui, Kenya Colony.

♂ (M. C. Z. 38824) Mbanja, T. T. 3. v. 39.

Discussion. In the upper jaw the anterior premolar is minute, crowded to the outer side of the tooth row and barely reaching the

cingulum level of the posterior premolar, which is in contact with the canine. In the lower jaw the corresponding tooth is absent. The forearm measures 50 mm.

Measurements. ♂. 58. 26. 9. 24. 150 mm.

Rhinolophus lobatus Peters

Rhinolophus lobatus Peters, 1852, Reise nach Mossambique, Säugeth., p. 41, pl. ix, pl. xiii, figs. 16–17: Sena and Tette, Mozambique.

6 ♂ 4 ♀ (M. C. Z. 38972–81) Magrotto Mtn., T. T. 11. vii. 39.

Native name. *Ndema* (Kisambara).

Discussion. These agree closely with Peters's description and figures, though in their pale-based fur with brown stippling these delicately formed little bats bear at first sight a resemblance to *Hipposideros caffer*. Hollister (1918, p. 84) has recorded the species from Naivasha and Kijabe, Kenya Colony, so that it evidently has a wide range in eastern Africa.

Measurements. ♂. 57. 25. 8. 17. 136 mm., ♀. 59. 24. 8. 17. 137 mm.

Parasite. A large nycteribiid (———— ————) on one.

Habitat. Netted at the entrance to Kitulwe Cave near the summit of the mountain.

HIPPOSIDERIDAE

Hipposideros cyclops (Temminck)

Pyllorrhina cyclops Temminck, 1853, Esquisses Zool. sur la Côte de Guiné, p. 75: Boutry River, Gold Coast.

♀ (M. C. Z. 40829) Budongo Forest, U. 1. xii. 38.

Native name. *Kinyira* (Luganda), usually reserved for fruit bats.

Discussion. The specimen agrees closely with one from Avakubi, Belgian Congo, a topotype of *H. langi*, which Hayman has shown to be synonymous with *H. cyclops*. Its forearm (female) is 71 mm., or slightly larger than that of a male specimen from Liberia (66.5 mm.), but the difference may be merely individual.

Measurements. ♀. 95. 40. 18. 35. 210 mm.

Habitat. Netted in the forestry nursery at Bisu, a clearing in the heart of the forest.

Hipposideros gigas gigas (Wagner)

Rhinolophus gigas Wagner, 1845, Arch. Naturg., **11**, p. 148: Benguela, Angola.

8 ♂ 2 ♀ 1 ? (M. C. Z. 38917–20,–34–40) Siga Caves, Tanga, T. T. 8. vi. 39.

Native name. *Ndema* (Kisambara, but not generic).

Discussion. The discovery of these large bats in northeastern Tanganyika is interesting. Andersen in 1906, when reviewing this group, stated that specimens had been examined from Angola (the type locality) to Gambia (whence he described the race *gambiensis*), but the only evidence of its occurrence on the eastern side of the continent was that afforded by Peters's record (as *Phyllorhina vittata*) from Querimba Islands, Mozambique. Since then, J. A. Allen described in 1917 a new dark race *niangarae*, based on a single female from Niangara, Uele district, northeastern Belgian Congo. The present series secured by Loveridge therefore still further extends the known range. The specimens in measurements fall within the limits given by Andersen, with forearms in males 100–110 mm.; upper tooth row 13.7–14.5 mm.; antorbital width 11–12 mm. In the absence of adequate comparative material, they are regarded as of the typical race.

Measurements. ♂. 140. 43. 25. 35. 323 mm., ♀. 120. 45. 23. 31. 325 mm.

Habitat. The Siga (or Mkulumusi) Caves on the banks of the Mkulumusi River, appear to have been eroded from the limestone by the former course of the river. They are said to extend for a mile; in places the vaulted roof reaches to a great height. Shooting these bats was a most eerie experience; no sooner did we enter than there was a noise as of rushing water, resulting from the wing beats of thousands of bats which had been disturbed by the light from our electric torches. In an outer chamber we came upon the smaller horseshoe bats (*C. afra*), then a huge *Hipposideros* passed me so I followed a narrow passage, from which it seemed to have come, until we came to a high vaulted chamber that was apparently their headquarters. Most of the floor was under water. Squeakings in all sorts of keys seemed to indicate many species, but only *gigas* was revealed by my headlight or fell to my shots. At each report hundreds of bats came whirling about us while clouds of dust, dislodged by the explosion, set us coughing. The floor, carpeted by the accumulated bat guano of centuries, was rendered slippery by the continual dripping of water from the roof. As the bats fell into the pool we recovered them with the aid of a butterfly net. It was interesting to note that on our return to the cave on the following day not a

single giant horseshoe bat was to be seen — they had all migrated to some fresh retreat where they might be free from molestation.

Triaenops afer Peters

Triaenops afer Peters, 1877 (1876), Monatsb. Akad. Wiss. Berlin, p. 913, fig. 2: Mombasa, Kenya Colony.

♂ (M. C. Z. 38836) Mikindani, T. T. 15. iv. 39.
6 ♂ 6 ♀ (M. C. Z. 38941–5,–83–9) Siga Caves, T. T. 8. vi. 39.
19 ♂ 18 ♀ (alcoholics) Siga Caves, near Tanga, T. T. 8. vi. 39.

Native name. *Namutimuti* (Kimakonde and Kimawiha).

Discussion. The short ear with its abruptly narrowed tip is characteristic; forearm 53 mm.; tail extending about two-thirds the distance to the edge of the interfemoral membrane. Most of the skins are a warm golden brown (about Prout's brown of Ridgway) above, somewhat paler below. Two, however, are uniformly bright cinnamon above to cinnamon buff below. Another is evidently molting and retains a collar of 'orange-cinnamon' as well as a small patch of the same in the middle of the back; warm buff below. This bright coloring may mark the fully adult stage. Two immature specimens are darker gray above, whitish below.

Measurements. ♂. 68. 29. 8. 13. 151 mm., ♀. 65. 30. 10. 15. 145 mm.

Remarks. The Mikindani male whose measurements are given above, was netted with *Epomophorus w. wahlbergi* as already related; the Siga series were netted at the entrance of one of the smaller caves.

VESPERTILIONIDAE

Pipistrellus nanus nanus (Peters)

Vespertilio nanus Peters, 1852, Reise nach Mossambique, Säugeth., p. 63, pl. xvi, fig. 2: Inhambane, Mozambique.

4 ♂ 1 ♀ (M. C. Z. 39200, 40808–11) Kibale Forest, U. 19. xii. 38.
2 ♂ 2 ♀ (M. C. Z. 40763–6) Idjwi Id., Lake Kivu, B. C. 4. iii. 39.
6 ♂ 4 ♀ (M. C. Z. 38995–9, 39049–53) Magrotto Mtn., T. T. 29. vi. 39.
10 ♂ 6 ♀ (alcoholic specimens) Magrotto Mtns., T. T. 29. vi. 39.

Native names. *Kihuguhugu*[1] (Lutoro); *belibu* (Luamba); *nundu* (Kisambara).

[1] The Education Department, however, reserves this for fruit bats, and considers *Kahundu* (Lutoro) the correct name for insectivorous bats.

Discussion. This widely distributed little bat is frequently found by day resting inside the rolled-up central frond of the banana plant.

Measurements. ♂. 45. 34. 6. 9. 99 mm., ♀. 45. 42. 6. 9. 104 mm., the ♂ being from Magrotto, the female from Idjwi Id.

Miniopterus minor Peters

Miniopterus minor Peters, 1867 (1866), Monatsb. Akad. Wiss. Berlin, p. 885: Zanzibar coast.

3 ♂ 1 ♀ (M. C. Z. 38946, 38992–4) Siga Caves, Tanga, T. T. 10. vi. 39.

Discussion. These four specimens agree in their dark blackish-gray color above, drabby below, becoming dark smoky gray on the throat and chest. Forearms, 39–42 mm.; skull length, 14 mm. The forearm of the type is said to measure only 37 mm. On the whole, however, these specimens may be best referred to *minor*, of which they are topotypic.

Measurements. ♂. 51. 40. 7. 11. 137 mm., ♀. 47. 43. 8. 10. 138 mm.

Habitat. Netted at the entrance to one of the smaller caves.

MOLOSSIDAE

Mops angolensis orientis subsp. nov.

6 ♂ 4 ♀ (M. C. Z. 38826–35) Kitaya, T. T. 3. iv. 39.

Type. Museum of Comparative Zoölogy No. 38829, an adult male, skin and skull, from Kitaya, Rovuma River, southeastern Tanganyika Territory. Collected by Arthur Loveridge, April 3, 1939.

Description. One of the stout-bodied forms with white underside, slightly smaller than *Mops* (*Allomops*) *angolensis osborni* of the Great Lakes region, to which it is related, and with the upper surface faintly tinged with tawny ochraceous instead of being uniform drabby brown; skull slightly smaller and with less development of the sagittal crest.

Distribution of the fur as in *M. a. osborni*, the wing above naked, but with a narrow line of whitish hairs on the anterior and posterior sides of the humerus; hind legs practically naked as well as the posterior part of the rump and the anal region, where, however, minute scattered hairs are visible under a lens. Face, chin and ears blackish, with minute sparse hairs; toes with the usual longer stiff hairs as well as lateral hairs on outer edge of the first and fifth toes. Entire under surface of the body pure white to the edge of the membrane, with

slight individual variation, so that in some specimens the sides of the neck are pale drab while in others this tint is more extensive, from the axilla back along the side halfway to the groin. Wings dusky brown, becoming whitish lateral to the forearm; this pale area varies individually but may extend to the tip of the third finger.

Measurements. The collector's measurements of the type are: head and body, 86 mm.; tail, 40; hind foot, 13; ear, 19; spread of wings, 340.

The cranial measurements of the skull of the type are: greatest length, 21.8 mm.; condylobasal length, 19.2; palatal length, 9.9; zygomatic width, 13.0; mastoid width, 11.5; width outside molars, 9.5; upper cheek teeth, 7.7.

In the adult-male skull the occiput is produced behind and squarely truncate, with a transverse angular crest, while the knife-like sagittal crest extends forward to the interorbital level. In the upper jaw the anterior premolar is minute and crowded into the outer angle between the canine and large premolar, which are in contact in their median line. In the lower jaw the anterior pair of incisors overlaps the posterior pair, and all four are bifid. In males the two lower premolars are of nearly equal height, but in females the anterior one is distinctly the shorter.

Remarks. The series is uniform in the decided tint of russet above instead of the dull drab of *osborni*, while the much clearer and more extensive white area of the lower side and the whitish wings, distinguish it further and altogether probably reflect the somewhat different climatic conditions of this part of the coast as compared with the Tana River and Lake region. The form, *Mops faradjius*, is a darker representative found in the northeastern Congo forest; probably all should be regarded as races of *M. angolensis*.

Habitat. These bats were roosting under the galvanized roof of the baraza house. I set up the net at 6.30 p.m.; the bats began emerging at 6.45 p.m. and by 7 p.m. I had removed ten of this species and one of the much smaller *C. limbatus*. Naturally their stomachs were empty, none of the females held embryos. The natives apply the same name *kiputiputi* to them as for other small bats.

Chaerephon limbatus (Peters)

Dysopes limbatus Peters, 1852, Reise nach Mossambique, Säugeth., p. 56, pl. xiv: Mozambique Island and Sena, Mozambique.

♀ (M. C. Z. 38825) Kitaya, T. T. 3. iv. 39.

Native name. Kiputiputi (Kimakonde); *kaundo* (Kiyao).

Discussion. This female agrees closely with Peters's figures and description. It is difficult to see how *C. hindei* of Thomas, from Fort Hall, Kenya Colony, is really different.

Habitat. Taken together with the larger *Mops* as described above.

Chaerephon pumilus naivashae Hollister

Chaerephon pumilus naivashae Hollister, 1916, Smithsonian Misc. Coll., **66**, No. 1, p. 4: Naivasha Station, Kenya Colony.

1 (alcoholic) Ibis Hotel, Jinja, U. 4. xi. 38.
4 ♂ 5 ♀ (M. C. Z. 39347–55) Budongo Forest, U. 24–26. xi. 38.
2 ♂ 20 ♀ (alcoholic) Bisu, Budongo Forest, U. 26. xi. 38.

Discussion. This series is very uniform in its characters. The color is drab brown above, paler and more drab below; a narrow line of white fur borders the body on the ventral side from axilla to groin and is continued across the upper thigh; membranes dusky, more or less translucent at the sides. In size the series is intermediate between the measurements given by Hollister (1918, p. 98) for this race and the typical form from Eritrea and the Sudan, having the small forearm of the latter (37–39 mm. as against 39–42 mm. in *naivashae*), but with the larger skull of *naivashae* (greatest length 16 mm. or slightly more, against 15 mm. or less as in the Red Sea form). The small upper anterior premolar is well developed and fully in place in the tooth row.

Measurements. ♂. 55. 43. 6. 10. 133 mm., ♀. 60. 37. 7. 16. 140 mm.

Breeding. On November 26, each of the five females examined, held an embryo of which some were well advanced.

Habitat. Very abundant in the buildings of Buchanan's Saw-Mills. At dusk I spread a net between two baulks of timber, and on returning twenty minutes later, found six males and twenty-five females entangled. The entire net was transferred to a cyanide tin, so that later it was possible to disentangle the corpses with comparative ease.

MUSTELIDAE

Poecilogale albinucha doggetti Thomas & Schwann

Poecilogale doggetti Thomas & Schwann, 1904, Abstr. Proc. Zool. Soc. London, No. 6, p. 22: Burumba, Ankole, Uganda.

♂ (M. C. Z. 39357) Mushongero, U. 1. ii. 39.
♂ ♀ (M. C. Z. 39140–1) Kisenyi, B. R. 10. ii. 39.

Native name. Samonyiga (Lugezi).

Discussion. This large race represents the westward extreme of the

species in Central Africa. Lönnberg has recorded specimens from Rutshuru, regarding them as a race of the South African *P. albinucha*, rather than a distinct species. He mentions the discrepancy in size between males and females, but without giving measurements. Of the three specimens secured by Loveridge, an adult male from Mushongero, Lake Mutanda, and an adult female (M. C. Z. 39141) with well-developed sagittal crest, from Kisenyi, Lake Kivu, show the following skull measurements, respectively: greatest length, 59.5, 53.8 mm.; basal length, 55.6, 51.6; palatal length, 27.2, 25.6; zygomatic width, 32.6, 29.5; mastoid width, 29.6, 26.1; width outside upper large premolars, 19.8, 19.0; upper tooth row, 19.0, 17.8; lower tooth row, 19.3, 17.9. The skull of the female appears much smaller and more slender than that of the male, notwithstanding that the actual differences are not very great.

Measurements. ♂. 330. 210. 45. 18 mm., ♀. 325. 130. 39. 16 mm., from Mushongero and Kisenyi respectively.

Aonyx capensis ?hindei (Thomas)

Lutra capensis hindei Thomas, 1905, Ann. Mag. Nat. Hist. (7), **15**, p. 78: Fort Hall, Kenya Colony.

1 (M. C. Z. 39426) Bought at Nyakabande, U. 4. ii. 39.

Discussion. This native-made skin has the head and shoulders hoary, the throat sharply contrasted white as far as a line from lower rim of eye to just below the ear. It is provisionally referred to the race *hindei*, the validity of which may be still open to doubt.

Remarks. Nyakabande, Kigezi district, lies between Lakes Mutanda and Bunyonyi. The skin was one of two bought for $3.25 (the other being in the ethnological collections of the Peabody Museum) in the hopes that it might represent *Paraonyx phillipsi* Hinton, from Lake Bunyonyi. It lacks lips and vibrissae, however, these having been cut away; nor does it exhibit the median head stripe of *phillipsi*. The native from whom it was purchased said that it came from the south end of Lake Mutanda where this larger otter lives in the vast papyrus swamps. All the natives agreed that only two species of otter occur in the lake.

Lutra maculicollis tenuis Pohle

Lutra tenuis Pohle, 1920 (1919), Arch. Naturg., **85**, A, p. 53: Lake Mohasi, Belgian Ruanda-Urundi.

Lutra maculicollis mutandae Hinton, 1921, Ann. Mag. Nat. Hist. (9), **7**, p. 368: Lake Mutanda, British Ruanda, Uganda.

♂ (M. C. Z. 39425) Mushongero, L. Mutanda, U. 31. i. 39.

Native names. *Ngonyi* (Lukiga); *nzibi* (Lulega, for *kivuana*).

Discussion. This handsome skin is dark in color and the throat spots are sharply contrasted white. The postorbital processes as usual are lacking. This specimen is a topotype of *mutandae,* which is almost certainly a synonym of *tenuis,* described a year earlier from a lake lying forty miles further south.

Measurements. ♂. 630. 335. 173. 16 mm.

Diet. A frog (*Xenopus l. bunyoniensis*) was in its stomach. These otters engage in fishing in the early morning and late afternoon, and the one listed here was so engaged when I shot it (from a canoe) in the back of the head.

VIVERRIDAE

Genetta tigrina stuhlmanni Matschie

Genetta stuhlmanni Matschie, 1902, Verh. d. V. Internat. Zool. Congress, Berlin, 1901, p. 1142: Bukoba, Lake Victoria, Tanganyika Territory.

♂ (M. C. Z. 39394) Mabira Forest, U. 9. xi. 38.

Native name. *Kasimba* (Luganda).

Measurements. ♂. 490. 430. 80. 40 mm.

Genetta tigrina suahelica Matschie

Genetta suahelica Matschie, 1902, Verh. d. V. Internat. Zool. Congress, Berlin, 1901, p. 1143: East coast of Tanganyika Territory to Mombasa, Kenya Colony.

♀ (M. C. Z. 38868) Nchingidi, T. T. 11. v. 39.

Discussion. This is a youngish animal from the Rondo Plateau, southwest of Lindi.

Myonax sanguineus proteus (Thomas)

Mungos gracilis proteus Thomas, 1907, Ann. Mag. Nat. Hist. (7), **19**, p. 119: Mubuku Valley, Ruwenzori Mountains, Uganda, 7000 ft.

♀ (M. C. Z. 39272) Mihunga, U. 29. xii. 38.

Native names. *Kasisi* (Lukonjo); [1]*kasindi* (Lutoro).

Discussion. This topotype is an immature individual with blackish limbs and terminal third of tail, but with the head and back finely

[1] Somewhat doubtful as applied also to a squirrel.

sprinkled with ochraceous; the ventral side of the body is dark smoky with very little speckling.

Measurements. ♀. 320. 240. 51. 25 mm.

Parasites. Larval pentastomids (*Armillifer armillatus*) in mesentery.

Atilax paludinosus ?mordax (Thomas)

Mungos paludinosus mordax Thomas, 1912, Ann. Mag. Nat. Hist. (8), **10**, p. 588: Rombashi River, northwest of north end of Lake Nyasa, Tanganyika Territory.

♂ juv. (M. C. Z. 39158) Mushongero, U. 31. i. 39.

Native name. Chihura (Lukiga).

Discussion. This specimen from Lake Mutanda is very young with only the two central pairs of milk incisors in place. It is melanistic with the rather long, lax pelage entirely blackish. The proportionately short tail (90 mm. against head and body length of 220 mm.), the entirely naked soles, and five-toed feet with unwebbed digits, seem sufficient to place it in this genus.

Measurements. ♂ juv. 220. 90. 45. 22 mm.

Bdeogale crassicauda omnivora Heller

Bdeogale crassicauda omnivora Heller, 1913, Smithsonian Misc. Coll., **61**, No. 13, p. 12: Mazeras, Kenya Colony.

♀ (M. C. Z. 39416) Magrotto Mtn., T. T. 12. vii. 39.

Native names. Kicheche or *ngogo* (Kisambara).

Discussion. This adult female is melanistic, nearly black all over, with the sides of the head and body, and to a less extent the back, sprinkled with minute pale tips; the under fur is soiled grayish white, the cylindrical tail deep black. The skull agrees closely in measurements with those published by Hollister (1918, p. 135) for the type and topotype from Mazeras, not far distant in southeastern Kenya Colony.

Measurements. ♀. 450. 220. 78. 38 mm.

Enemies. I came upon a hunting party of four Wasambara and half-a-dozen curs, who had located this mongoose at the end of its burrow between two rocks in the forest. They had already dug out the burrow as far as the rocks would permit and were poking a stick down the hole. Suddenly the mongoose burst from its retreat, was seized by a dog, then rescued by a man who dealt *both* animals a blow with his heavy stick. The men subsequently ate the mongoose!

FELIDAE

Felis brachyura pantasticta Pocock

Felis servalina pantasticta Pocock, 1907, Proc. Zool. Soc. London, p. 665, pl. xxxviii, fig. 3: Entebbe, Uganda.

1 (M. C. Z. 40840) near Mabira Forest, U. xi. 38.

Discussion. This native skin, presented to the Expedition by Mr. J. L. Jarvis, agrees well in color pattern with those from the northeastern Congo as figured by J. A. Allen (1924, pl. xlvii). It comes from a point about sixty miles northeast of the type locality — Entebbe.

LORISIDAE

Galago crassicaudatus lasiotis Peters

Galago lasiotis Peters, 1876, Monatsb. Akad. Wiss. Berlin, p. 912, fig. 1: Mombasa, Kenya Colony.

5 ♂ 1 ♀ (M. C. Z. 39408–12, 39415) Siga Caves, Tanga, T. T. 9–15. vi. 39.

2 ♂ (M. C. Z. 39413–4) Amboni Estate, Tanga, T. T. 20 & 26. vi. 39.

Native name. Komba (Kiswahili and Kisambara).

Discussion. These eight specimens come from localities which, according to Schwarz (1931, p. 45), mark the southern limits of the range of this coastal race. Most of them show a decided tinge of cinnamon on the back; three have white tail-tips; one has the entire terminal half of the tail white; while in another the last third is mixed whitish and dark.

Measurements. ♂. 300. 360. 90. 50 mm., ♀. 280. 360. 90. 48 mm., from Amboni and Siga respectively.

Diet. Apparently acacia gum, in the stomach of one examined.

Parasites. Nematodes (*Subulura* sp. ♀) and encysted larval screwworms (*Armillifer armillatus*).

Habitat. The entire Siga series were shot in one or other of two large acacia trees which they ascended soon after dusk. They could be heard approaching the trees through the dense underbrush, for they were noisily vocal, and would scold at me until the headlight found their glowing eyes. Mr. Tanner, of Amboni Estate, told me that one of these galagos was electrocuted on the 30,000 volt high-tension wires which cross his driveway. The species was heard calling on Magrotto Mountain, but I failed to get any there.

Galago demidovii thomasi Elliot

Plate 3, fig. 1.

Galago (*Hemigalago*) *thomasi* Elliot, 1907, Ann. Mag. Nat. Hist. (7), **20**, p. 189: Fort Beni, Semliki River, Belgian Congo.

♂ (M. C. Z. 38916) Idjwi Island, B. C. 28. ii. 39.

Native name. *Luhololo* (Lulega).

Discussion. This single specimen, which is referred to the race *thomasi*, is dark brown above, and yellowish-washed below. Galagos of this species are especially characteristic of the West African forest area and become rarer on its eastward extension, where their place is taken by the *G. senegalensis* and *G. crassicaudatus* groups, of the gallery and savannah forests.

Measurements. ♂. 150. 200. 53. 25 mm.

Galago senegalensis zanzibaricus Matschie

Galago zanzibaricus Matschie, 1893, Sitzb. Ges. Naturf. Freunde, Berlin, p. 111: Yambiani (*not* Muyuni as given), Zanzibar.

3 ♂ 2 ♀ (M. C. Z. 38911–5) Amboni Estate, T. T. 19–24. vi. 39.

Discussion. According to Schwarz's review (1931, p. 55), specimens from the Tanga district are indistinguishable from those of Zanzibar and the coast region as far south as Dar es Salaam, but inland in the drier country are represented by the race *braccatus*.

Measurements. ♂. 170. 215. 60. 35 mm., ♀. 160. 225. 60. 37 mm.

Habitat. Exceedingly abundant in the preserved patch of secondary forest in the middle of the estate. They were joined by a young *G. s. moholi* which I had brought from Nchingidi a month before, and which escaped from my tent at the forest-edge.

Galago senegalensis moholi A. Smith

Galago moholi A. Smith, 1836, Rep. Exped. Explor. Cent. Africa, p. 42: Banks of the Marikwa and Limpopo, Bechuanaland.

1 ♂ 2 ♀ (M. C. Z. 38875–7) Nchingidi, T. T. 20. v. 39.

Discussion. Although in coloration of the limbs and body closely similar to the series of *zanzibaricus*, these skins from the Rondo Plateau forest have much darker tails with the terminal third blackish, instead of at most the terminal third dusky. Schwarz (1931, p. 57), in his review, includes as of this race specimens from Liwale, Kilwa dis-

trict. One would expect a certain amount of intergradation in this general area.

Breeding. A young one accompanied one of the females.

CERCOPITHECIDAE

Cercocebus albigena johnstoni (Lydekker)

Semnocebus albigena johnstoni Lydekker, 1900, Novit. Zool., **7**, p. 594: "Near Lake Tanganyika," but probably from the Semliki or Ituri Forest (*fide* Lorenz).

♂ (M. C. Z. 39402) Mabira Forest, U. 12. xi. 38.
3 ♂ (M. C. Z. 39388, 39395–6) Kibale Forest, U. 9–15. xii. 38.

Native name. *Sewagaba* (Luganda).

Measurements. ♂. 630. 840. 175. 40 mm., from Kibale Forest.

Diet. Stomach full of finely masticated green matter.

Habits. The Mabira male was in the company of a troupe of young *C. n. schmidti.* In Kibale forest, on the other hand, where these mangabeys were numerous as well as tame, they went about in large bands of their own kind.

Cercopithecus nictitans schmidti Matschie

Cercopithecus schmidti Matschie, 1892, Zool. Anz., **15**, p. 161: Manyema, west of north end of Lake Tanganyika, Belgian Congo.

♀ (M. C. Z. 39380) Mabira Forest, U. 11. xi. 38.
♂ (M. C. Z. 39374) Budongo Forest, U. 24. xi. 38.
♂ ♀ (M. C. Z. 39379, 39385) Kibale Forest, U. 10 & 13. xii. 38.

Discussion. All four specimens agree closely in color pattern. Those from the Kibale Forest are practically topotypes of *mpangae* Matschie (for the Mpanga River flows through the Kibale Forest) and have been compared with the topotypic series of *kaimosae* Heller from which they do not appear to differ. *C. schmidti mpangae* Matschie, together with its synonyms, is, therefore, referred to the synonymy of *C. n. schmidti* with a distribution from the eastern Belgian Congo across Uganda to western Kenya Colony.

Measurements. ♂. 530. 870. 145. 35 mm., ♀. 495. 615. 120. 30 mm., from Budongo and Mabira Forests respectively. There is considerable variation in tail length.

Diet. A pea-like fruit was present in the stomach of the Budongo male.

Habits. This Budongo male was feeding in the same tree with a solitary female of *C. m. stuhlmanni.* When disturbed, these white-nosed, red-tailed monkeys maintain a continuous bird-like chirping.

Cercopithecus l'hoesti l'hoesti Sclater

Cercopithecus l'hoesti P. L. Sclater, 1899 (1898), Proc. Zool. Soc. London, p. 586, pl. xlviii: Congo.

2 ♀ (M. C. Z. 39382, 39386) Kibale Forest, U. 10 & 13. xii. 38.

Discussion. This handsome, red-backed, black-limbed monkey with contrasting white throat and side whiskers, probably does not extend much to the eastward of this region.

Measurements. Larger ♀. 600. 650. 160. 30 mm. The relatively short tail appears to be a good distinguishing feature.

Parasites. Hair-like nematodes (*Trichuris trichuria*) were present in the stomach.

Cercopithecus mitis stuhlmanni Matschie

Cercopithecus stuhlmanni Matschie, 1893, Sitzb. Ges. Naturf. Freunde Berlin, p. 225: North of Kinyawanga, northwest of Lake Albert, Belgian Congo.

3 ♀ (M. C. Z. 39375, 39377–8) Budongo Forest, U. 24. xi–2. xii. 38.
2 ♂ (M. C. Z. 39398, 39401) Mubuku Valley, U. 2–4. i. 39.
1 ♂ (M. C. Z. 39399) Mihunga, Ruwenzori Mtns., U. 13. ii. 39.

Native names. Nkima (Lukonjo and Lutoro).

Discussion. This is a common species in western Uganda. The three males from Ruwenzori at 7000 feet are practically topotypes of the supposed race *carruthersi,* described from 10,000 feet, now regarded as a synonym.

Measurements. ♂. 630. 800. 160. 40 mm., ♀. 510. 785. 138. 34 mm., from Mubuku and Budongo respectively.

Diet. The stomachs of the Mubuku males were full of berries.

Habits. Both the fine Mubuku males were quite solitary, and the only examples of their species seen during our stay in the valley. One of the Budongo females, however, was associated with a male *C. n. schmidti.*

Cercopithecus mitis schoutedeni Schwarz

Cercopithecus leucampyx schoutedeni Schwarz, 1928, Revue Zool. Bot. Africaine, **16**, p. 126: Idjwi Island, Lake Kivu, Belgian Congo.

2 ♂ (M. C. Z. 38376, 39387) Idjwi Island, B. C. 20–21. ii. 39.

Native name. Nchima (Lulega).

Discussion. These two topotypes amply bear out the characteristics of this race, which has a much paler, slightly buffy back as compared with the darker race *stuhlmanni* farther northward. A similar difference is noticeable in a number of other mammals, in which the races about Lake Kivu are paler than their representatives in the Ruwenzori region.

Measurements. Larger ♂. 600. 860. 172. 36 mm.

Diet. Stomach of one full of pumpkin. In addition to pumpkin, I observed that these monkeys eat maize, millet, and mahoga leaves by raiding gardens adjacent to the forest.

Enemies. If the natives did not encroach upon the forest as they are doing, or cultivate in its immediate vicinity, there might be less plundering. As things are there is much antagonism between them, and the monkeys are very wild through much hunting. On several occasions I heard parties of Bambuti hunting them in the forest to the accompaniment of an infernal din. As, with the exception of the serval, these monkeys are the only large mammal on the island, the natives are eager to eat them.

Cercopithecus mitis monoides Geoffroy

Cercopithecus monoides I. Geoffroy, 1841, Arch. Mus. d'Hist. Nat. Paris (1), **2**, p. 558, pl. xxxi: Lectotype, Rufigi River, 8° S., Tanganyika Territory.

2 ♀ (M. C. Z. 39383–4) Mikindani, T. T. 11 & 14. iv. 39.
♀ (M. C. Z. 39390) Siga Caves, Tanga, T. T. 9. vi. 39.
♀ (M. C. Z. 39389) Magrotto Mtn., T. T. 10. vii. 39.

Native names. Unima (Kimakonde); *lichima* (Kimwera); *ndoue* (Kisambara).

Discussion. This is a somewhat pale coastal form, with pale-orange back, gray hind limbs and under surface; the forearm and thumb are deep black, the hind feet black and gray speckled.

Measurements. ♀. 480. 670. 125. 30 mm. From Magrotto.

Diet. On Amboni Estate I was shown young sisal shoots destroyed by these monkeys. In consequence a bounty of one shilling is paid for each monkey killed.

Remarks. Seen also at Kitaya; and heard at Mbanja, Nchingidi and Amboni where they are shy through much hunting.

Cercopithecus aethiops centralis Neumann

Cercopithecus centralis Neumann, 1900, Zool. Jahrb., Syst., **13**, p. 533: Bukoba, Lake Victoria, Tanganyika Territory.

1 ♂ 2 ♀ (M. C. Z. 39381, 39403, 39418) Mihunga, U. 10 & 17. i. 39.

Native name. *Nkende* (Lukonjo and Lutoro).

Measurements. ♂. 500. 520. 132. 35 mm., ♀. 500. 550. 125. 38 mm.

Breeding. The female was carrying a young ♀. 225. 360. 85. 31 mm., on January 17.

Enemies. The bodies were requested by the Bakonjo, who eat them.

Cercopithecus aethiops johnstoni Pocock

Cercopithecus pygerythrus johnstoni Pocock, 1907, Proc. Zool. Soc. London, p. 638: Moshi, near Kilimanjaro, Tanganyika Territory.

♀ (M. C. Z. 39393) Amboni Estate, near Tanga, T. T. 24. vi. 39.

Native name. *Tumbili* (Kiswahili and Kisambara).

Measurements. ♀. 450. 600. 120. 32 mm.

COLOBIDAE

Colobus polykomos palliatus Peters

Colobus palliatus Peters, 1868, Monatsb. Akad. Wiss. Berlin, p. 637: East Africa, opposite Zanzibar, *i.e.* Pangani River, Tanganyika Territory.

♂ ♀ (M. C. Z. 39391–2) Amboni Estate, near Tanga, T. T. 22. vi. 39.

Native name. *Mbega* (Kiswahili and Kisambara).

Discussion. This is the form of the coastal ranges of northern Tanganyika and southern Kenya Colony.

Measurements. ♂. 570. 730. 167. 31 mm., ♀. 500. 570. 140. 29 mm.

Colobus badius tephrosceles Elliot

Colobus tephrosceles Elliot, 1907, Ann. Mag. Nat. Hist. (7), **20**, p. 195: Ruahara River, Toro, east side Ruwenzori Mountains, Uganda, 4000 ft.

2 ♂ (M. C. Z. 39397, 39400) Kibale Forest, U. 10. xii. 38.

Native name. *Kobi* (Luganda).

Discussion. These examples of *tephrosceles* from Toro must be almost topotypic; although generally rare in collections, Loveridge found it abundant in the Kibale Forest. This race is nearest to *C. b. rufomitratus*, the range of which is now confined to the gallery forests of the lower Tana River.

Measurements. ♂. 600. 720. 160. 31 mm.

Habits. The troupes of red-capped colobus were very large, at least fifty, perhaps double that number, of animals forming a troupe. When fired at they uttered very threatening cries.

MANIDAE

Phataginus tricuspis mabirae subsp. nov.

Plate 3, fig. 2, and Plate 4, figs. 1–2.

Type. Museum of Comparative Zoölogy, No. 39417, an adult male, skin and skull, from Mubango, Mabira Forest, Chagwe, Uganda, collected by Arthur Loveridge, November 12, 1938.

Description. In typical *P. tricuspis* from the Cameroons, the nasals usually show a constriction or waist at the middle then abruptly expand posteriorly and are widest at the point of junction between the maxillae and the anterior corner of the frontals, where the nasals show a sharp angle; in the Uganda skull, however, they are not so narrowed, but expand evenly and gradually with very little trace of an angle, and are produced farther back behind the maxillo-frontal contact. In all four Cameroons skulls examined, the transverse suture formed by the anterior outline of the parietals is farther forward and reaches laterally the angle formed by the anterior root of the squamosal process, whereas in the Uganda skull this line falls well posterior to the squamosal angle (by about 5 mm.). In the latter too, the premaxilla is considerably wider and its ascending process is shorter and much less tapering. In dorsal view there is no interorbital narrowing such as is obvious in the West African skulls, but the outlines are nearly straight and diverging from the anterior tip.

The thin hairy coat on the underside of the body is different in color from any of the eight other specimens from western Africa seen, an 'orange cinnamon' instead of dark blackish brown or gray. The tips of the scales are truncate through wear.

Measurements. The collector's measurements are: head and body, 355 mm.; tail, 555; hind foot, 47. The skull measures: greatest length (which is same as condylo-incisive length), 79 mm.; palatal length, 43.7; mastoid width, 34.3; lacrimal width, 22.0; width at fronto-parietal suture, 29.4; length of mandible, 54.5.

Remarks. In studying the series of *Phataginus* collected by the American Museum's Congo Expedition, Dr. Robert T. Hatt (1934, p. 655) called attention to the wide individual variation in the conformation of the bones of the skull and in other characters, so that the significance of the details of difference mentioned above may to some extent be less than supposed; nevertheless they seem sufficiently striking on the whole to justify the distinction of the extreme eastern

animal of Uganda from that of West Africa, as represented by Cameroons and Ivory Coast specimens.

Native name. *Lugave* (Luganda).

Parasites. Ticks (*Amblyomma cuneatum*) were numerous.

SCIURIDAE

Aethosciurus ruwenzorii ruwenzorii (Schwann)

Sciurus rufobrachiatus ruwenzorii Schwann, 1904, Ann. Mag. Nat. Hist. (7), **13**, p. 71: Wimi Valley, Ruwenzori Mountains, Uganda, 7880 ft.

1 ♂ 2 ♀ (M. C. Z. 39277–9) Mihunga, U. 13–16. i. 39.

Native name. *Kasindi* (Lukonjo and Lutoro).

Discussion. These greenish-olive squirrels with white ventral stripe from chin to anus, from eastern Ruwenzori, are almost topotypic.

Measurements. ♂. 200. 230. 51. 18 mm., ♀. 225. 230. 51. 18 mm.

Breeding. A note to the effect that they were 'not breeding' was made by the collector, but the senior author considers them to be in nursing condition with six mammae — two pectoral and four inguinal.

Heliosciurus rufobrachium arrhenii Lönnberg

Heliosciurus rufobrachiatus arrhenii Lönnberg, Kungl. Svenska Vet.-Akad. Handl., Stockholm (2), **58**, No. 2, p. 68: Masisi, near Kivu, Belgian Congo.

4 ♂ 4 ♀ (M. C. Z. 39097–102, 39138–9) Idjwi Id., B. C. 17–28. ii. 39.

Native name. *Lisbeshi* (Lulega).

Discussion. This series of skins from Lake Kivu shows a slight intensification of the rusty rufous on fore and hind limbs in comparison with those from Uganda referred to the race *nyansae*. The backs are similar in the two, but the long hairs of the tail are mainly black with longer white tips and two or three narrow white, instead of buffy, rings. One individual, however, shows the middle ring ochraceous distally. They are assumed to represent *arrhenii* which probably intergrades with *nyansae* and other neighboring races.

Measurements. ♂: 252. 240. 52. 19 mm., ♀. 245. 190. 55. 20 mm.

Heliosciurus rufobrachium nyansae (Neumann)

Sciurus nyansae Neumann, 1902, Sitzb. Ges. Naturf. Freunde Berlin, p. 56: Kwa Kitoto, Kavirondo, Kenya Colony.

♂ (M. C. Z. 39276) Mabira Forest, U. 15. xi. 38.

2 ♀ (M. C. Z. 39274–5) Budongo Forest, U. 19 & 25. xi. 38.

Native name. *Kakerebwe* (Luganda).
Measurements. ♂. 220. 225. 53. 20 mm., ♀. 220. 250. 50. 16 mm.

Heliosciurus undulatus undulatus (True)

Sciurus undulatus True, 1892, Proc. U. S. Nat. Mus., **15**, p. 465, fig. 3: Mt. Kilimanjaro and Kahe, south of it, Tanganyika Territory.

1 ♂ 1 ♀ (M. C. Z. 39107–8) Siga Caves, near Tanga, T. T. 9. vi. 39.
6 ♂ 9 ♀ (M. C. Z. 39103–6,–9–19) Magrotto Mtn., T. T. 30. vi–15. vii. 39.

Native name. *Nkenda* (Kisambara).
Discussion. The series from Magrotto is referred to the typical race. There is much individual variation in the amount of rusty on the under surface. In a few individuals this region is nearly uniform drabby brown, in others the inner side of the tibiae is bright rufous, less so on the under side of the forearms, while others again show intermediate conditions.

The two from Tanga district agree in being a trifle paler below than the Magrotto series, their throats lacking a distinct rufous tinge, being a pinkish drab instead; while on the sides of the back the pale subterminal ring of the separate hairs is white, instead of ochraceous buff, giving the flanks and dorsum a pale hoary appearance. They do not, however, conform to Thomas's description of his race *daucinus* from Mombasa, as one might have supposed.

Measurements. ♂. 250. 280. 54. 20 mm., ♀. 237. 300. 50. 22 mm. From Magrotto and Siga Caves respectively.

Diet. The Siga pair were feeding in a wild fig. Most of the Magrotto series were shot between 8 and 9 a.m. while eating nuts of the oil palm; one fell dead with a nut in its jaws! Doubtless their abundance on the Estate may be attributed to the rich food supply furnished by the palm plantation. Stomach contents of one consisted solely of these yellow nuts, that of another a white cheesy substance, a third's was mostly green matter.

Parasites. None observed!

Enemies. Eaten by the Wasambara.

Funisciurus pyrrhopus victoriae subsp. nov.

Type. Museum of Comparative Zoölogy, No. 39199, an adult male, skin and skull, from Kibale Forest, Toro, Uganda, collected by Arthur Loveridge, December 16, 1938.

Description. Nearest to *F. p. akka* of northeastern Belgian Congo, its closest neighbor, but differing in having the entire lower surfaces of the body and upper parts of limbs strongly suffused with ochraceous, the hairs at their bases white. In *F. p. akka* the entire under surface is white.

Dorsally, the central region of the body from between the eyes to the base of the tail is a mixture of all-black hairs with those having a narrow subterminal ring of ochraceous buff and a minute black tip; below this area on each side is a narrow stripe of clear ochraceous buff running from shoulder to hip; below this again on the flanks the bases of the hairs become slaty gray with much broader ochraceous rings resulting in a lateral band of clearer ochraceous buff and gray. The upper lips, a spot at the base of the vibrissae extending to the eye ring, clear orange rufous continuing broadly behind the eye to the base of the ear, but darker and duller rufous. Scrotum gray. Tail above, black, many of the hairs white-tipped forming a narrow fringe; under side with the central area dull rufous, bordered by black and narrowly fringed with white. Ears short, with their upper rims and posterior lobe black, edged ventrally with pale ochraceous.

Measurements. The collector's measurements are: head and body, 225 mm.; tail, 160; hind foot, 46; ear, 17. The skull measures: greatest length, 49.0 mm.; basal length, 40.7; palatal length, 24.6; zygomatic width, 25.2; mastoid width, 19.8; width across molars, 11.0; upper cheek teeth, 8.5; lower cheek teeth, 8.5.

Remarks. This is the most eastern of the described races of *F. pyrrhopus*, and though unfortunately based on but a single specimen, nevertheless differs so strikingly in its bright ochraceous under side from its nearest neighbor, *F. p. akka* from Monbuttu, that it seems worthy of a name. According to J. A. Allen's (1922, p. 54) account, *akka* is "exceedingly constant in coloration," his entire series of thirty-two skins having the under parts "pure white to the base of the fur."

Habitat. This little squirrel ran across the new road just cut through the forest southeast of Fort Portal, during a heavy downpour, then paused among the brushwood piled up at the side.

Paraxerus palliatus frerei (Gray)

Macroxus annulatus var. *frerei* Gray, 1873, Ann. Mag. Nat. Hist. (4), **12**, p. 265: Zanzibar.

♂ (M. C. Z. 39096) Siga Caves, T. T. 12. vi. 39.

Discussion. This squirrel, shot at the entrance of the caves near

Tanga, on the mainland almost opposite the type locality, closely matches topotypical material. The name *suahelicus*, formerly used for the mainland animal, is now regarded as a synonym.

Measurements. ♂. 195. 235. 52. 20 mm.

Paraxerus sponsus bridgemani Dollman

Paraxerus bridgemani Dollman, 1914, Ann. Mag. Nat. Hist. (8), **14**, p. 152: Indook, Panda, Mozambique.

2 ♂ 2 ♀ (M. C. Z. 38883, –5–6, –90) Kitaya, T. T. 28. iii–4. iv. 39.
2 ♂ 2 ♀ (M. C. Z. 38884, 38887–9) Mikindani, T. T. 10 & 20. iv. 39.
1 ♂ 1 ♀ (M. C. Z. 38881–2) Nchingidi, Rondo, T. T. 9–12. v. 39.

Native names. Kivuki (Kiyao); *kikubi* (Kimakonde at Kitaya); *chikuvi* (Kimakonde at Mbanja); *chiruma* (Kimwera).

Discussion. In general the series agrees well with the original description, but for a certain amount of individual variation in the amount of orange red in the tail. This may form a lateral border as originally described, or may occur as a mixture with the blackish hairs on both upper and lower sides. In some, with wear, it has disappeared altogether.

Measurements. ♂. 200. 185. 42. 21 mm., ♀. 200. 115. 45. 18 mm., from Kitaya and Nchingidi respectively.

Breeding. On April 3 and 20, half to two-thirds grown young were shot, the smallest, a ♂, measuring 120. 125. 36. 15 mm.

Habitat. At Kitaya two were shot on paths, two in the trees, a Mikindani squirrel in a mango tree. The species is addicted to chattering in the undergrowth very persistently; it is unusually wary, however, about exposing itself.

Paraxerus ochraceus aruscensis (Pagenstecher)

Sciurus cepapi var. *aruscensis* Pagenstecher, 1885, Jahrb. Hamburg. Wiss. Anst., **2**, p. 42: Great Arusha and Pangani River, Tanganyika Territory.

♂ ♀ (M. C. Z. 38908, 38910) Siga Caves, T. T. 9 & 12. vi. 39.
♀ (M. C. Z. 38909) Amboni Estate, Tanga, T. T. 19. vi. 39.

Discussion. The three specimens agree in having the belly broadly buffy, in contrast to typical *ochraceus* of Bagamoyo in which the mixed gray of the sides encroaches on the middle part of the belly.

Measurements. ♂. 175. 130. 39. 18 mm., ♀. 168. 185. 38. 16 mm., from Siga and Amboni respectively.

Habitat. Both Siga squirrels were shot in acacia trees, the Amboni animal was driven out of piled-up rubbish by a tractor.

Paraxerus flavivittis exgeanus Hinton

Paraxerus flavivittis exgeanus Hinton, 1920, Ann. Mag. Nat. Hist. (9), **5**, p. 311: Kilwa Kisiwani, Tanganyika Territory.

8 ♂ 2 ♀ (M. C. Z. 38891–900) Kitaya, T. T. 27. iii–3. iv. 39.
1 ♂ juv. (M. C. Z. 38901) Mbanja, near Lindi, T. T. 1. v. 39.
3 ♂ 2 ♀ (M. C. Z. 38902–6) Nchingidi, T. T. 12–19. v. 39.
1 ♂ (M. C. Z. 38907) Lindi, T. T. 2. vi. 39.

Native names. *Lileje* (Kiyao); *uhindi* (Kimakonde).

Measurements. ♂. 193. 162. 41. 20 mm., ♀. 185. 170. 38. 18 mm., from Kitaya and Nchingidi respectively.

Breeding. At Mikindani, on April 1, a nest, composed of a large loose assemblage of coconut fibre with some admixture of grass, holding a single young one the size of an adult *Mus musculus*, was found in a hollow tree. On being removed from the nest, the young squirrel set up a piercing squeak, so was replaced in the nest in a fork of the tree, while, from afar, we watched to see if the mother would respond to its cries. Presently she did return, but, finding herself observed, fled incontinently down the tree and across a field of short grass towards a big tree fully a hundred yards away. Surprised that fear should dominate maternal affections to such an extent, we returned the nest and its young one to its original hole and left them.

Habits. These squirrels may be seen best an hour after sunrise when they bask in close proximity to their holes, into which they disappear the moment that they realize that they have attracted attention. Their abundance at Kitaya may be attributed to the numerous hardwood trees, full of cavities, which are scattered among the native plots of millet. Thus the squirrel, when plundering the millet, is near a refuge from which it cannot be easily dislodged, the hardness of the wood defying the native axes. The disproportion of the sexes collected at Kitaya, suggests that the females are either more wary than the males, or that litters at this season were monopolizing their attention.

Tamiscus alexandri (Thomas & Wroughton)

Funisciurus alexandri Thomas & Wroughton, 1907, Ann. Mag. Nat. Hist. (7), **19**, p. 376: Gudima, Iri River, Upper Uele, Belgian Congo.

1 ♀ (M. C. Z. 40796) Mabira Forest, U. 11. xi. 38.
4 ♂ (M. C. Z. 39343–6) Budongo Forest, U. 6. xii. 38.

Native name. *Kakerebwe* (Luganda).

Discussion. The white-rimmed ears at once distinguish this striped squirrel. In a series of nineteen specimens from the upper Congo, J. A. Allen (1922, p. 58) found that in "November, December, January, and February specimens the black and white stripes are sharply defined but in April, May and October they are usually much less distinct owing to fading and wear." In the November-December series secured by Loveridge, the black stripe on either side of the dorsal area is clear and distinct with the trace of a shorter dark stripe just below the lateral white line, except in one of the Budongo skins in which the black stripes are much dulled by ochraceous-tipped hairs. Two other skins from near Beni, northeastern Congo, taken December 23 and 28, respectively, have these stripes similarly obscured while a third very young one (taken December 13) has both inner and outer black stripes sharply defined. It seems more likely that instead of being due to "fading and wear," this difference means rather that there are two distinct pelages, roughly corresponding to a summer and a winter pelage, the duller one representing the winter pelage of more northern latitudes. A similar dulling of the stripes is seen in the winter examples of the striped squirrels, *Tamiops*, of Asia. In the first coat of the young these stripes are contrastingly black. That there seems to be considerable irregularity in the season of assumption of the one or the other, probably is due to the fact that the breeding season extends over a considerable period, causing a corresponding lack of uniformity in the time of change from one coat to the other.

Measurements. ♂. 112. 116. 27. 13 mm., ♀. 112. 125. 25. 12 mm.

Habitat. The Budongo series were all shot about 9 a.m. in a large tree in the forestry nursery at Bisu. Rat traps, baited with bread, which had been set about the base of the tree for days previously, failed to attract them.

Tamiscus emini emini (Stuhlmann)

Sciurus emini Stuhlmann, 1894, Mit Emin Pascha ins Herz von Afrika, p. 320: Atyangara, Semliki River, Uganda.

2 ♀ (M. C. Z. 40794–5) Mabira Forest, U. 9 & 12. xi. 38.
2 ♀ (M. C. Z. 40838–9) Kibale Forest, U. 13 & 16. xii. 38.

Native name. Kakerebwe (Luganda).

Discussion. In the series at hand, including the above specimens, there is one from Ruwenzori Mountains, a topotype of *T. vulcanorum lunaris*, in a dull pelage with the first black stripe narrower than the

median buffy area; it is dated January. In the others of the series the black stripes are sharply contrasted and the first, or subdorsal, stripes are broader than the area between them. It seems evident that the dull pelage in this and *T. alexandri* correspond to, and may represent, a 'winter' coat which has now become slightly irregular in the time of its assumption. Possibly also the *T. v. lunaris* is merely this alternative state of *T. emini*.

Breeding. On December 13, a ♀ held a medium-sized embryo (preserved).

Protoxerus stangeri centricola (Thomas)

Sciurus stangeri centricola Thomas, 1906, Ann. Mag. Nat. Hist. (7), **18**, pp. 295, 297: Entebbe, Uganda.

♀ (M. C. Z. 39287) Mabira Forest, U. 18. xi. 38.
1 ♂ 2 ♀ (M. C. Z. 39273, –88, 40791) Budongo Forest, U. 2–3. xii. 38.
♀ (M. C. Z. 39286) Kibale Forest, U. 12. xii. 38.

Native name. Kakerebwe (Luganda).

Discussion. In all but the Kibale specimen the fingers of the hand are uniform black without sprinkling of ochraceous or rufous. The throats are darker grayish than in specimens to the westward.

Measurements. ♂ juv. 200. 220. 52. 17 mm., ♀ . 290. 310. 60. 22 mm., both from Budongo.

Breeding. On December 2, a female was disturbed in the forestry nursery as it ran down a tree. It immediately turned about, fled to the topmost branches, then lay along a branch where it was fairly exposed, but out of gunshot, so I did not fire. As hammering on the trunk did not disturb her, a native was posted to keep watch; half-an-hour later he reported that she had made for the next tree, thence to a third which was still taller. She was restless, however, and kept running to and fro from tree to tree until at last she came within range and was shot. She held two minute embryos (preserved). The following morning as we passed these trees we were scolded by a young male whose head protruded from a knot-hole at a height of sixty feet. Striking a tree with an axe did not silence it, so again a native was posted to summon me when it emerged. When called I found it still scolding and jerking its tail; it turned out to be larger than anticipated, viz. ♂ juv. 200. 220. 52. 17 mm.

MUSCARDINIDAE

Claviglis murinus soleatus (Thomas & Wroughton)

Plate 5, fig. 3.

Graphiurus soleatus Thomas & Wroughton, 1910, Trans. Zool. Soc. London, **19**, p. 499: Mubuku Valley, Ruwenzori Mountains, Uganda, 5000–6000 ft.

♂ ♀ (M. C. Z. 39267–8) Idjwi Id., B. C. 2. iii. 39.

Native name. Luleka (Lulega).

Discussion. This adult male and immature female agree closely with the original description. Compared with *C. m. saturatus* of Mt. Elgon, the adult is a darker gray above with only a faint brownish wash, and the under surface is smoke gray as described by Thomas and Wroughton, instead of with whitish-tipped hairs. The immature animal is a uniform dark smoke gray above, slightly paler below, with sharply contrasted white toes. The braincase appears rather flattened instead of vaulted as described for *C. vulcanicus* of Mt. Karisimbi, the description of which otherwise indicates little difference.

Measurements. ♂. 123. 92. 17. 14 mm., ♀. 70. 50. 11. 8 mm.

CRICETIDAE

Tatera cosensi (Kershaw)

Taterona coscnsi Kershaw, 1921, Ann. Mag. Nat. Hist. (9), **8**, p. 567: Vihingo, near Ruvu Station, Tanganyika Territory.

1 ♂ 2 ♀ (M. C. Z. 38879–2) Kitaya, T. T. 27. iii. 39.
3 ♂ (M. C. Z. 38843–4, –69) Mbanja, T. T. 27. iv. 39.

Native names. Lipuku (Kiyao); *nutu* (Kimakonde at Kitaya); *nkule* (Kimakonde at Mbanja, not even generic).

Discussion. The four adults seem to be referable to this animal, which was described from about forty miles inland from Dar es Salaam. It closely resembles *T. vicina*, of which it should probably stand as a race, somewhat more mixed with blackish on the middle of the back, slightly duller on the sides, and a very little larger in measurements.

Measurements. ♂. 175. 152. 35. 20 mm., ♀. 157. 165. 31. 21 mm., from Mbanja and Kitaya, respectively.

Breeding. On April 27, at Mbanja, two young males measured *circa* 95. 81. 29. 16 mm.

Diet. Adults trapped with bread bait.

Tatera nigrita nigrita Wroughton

Tatera nigrita Wroughton, 1906, Ann. Mag. Nat. Hist. (7), **17**, p. 491: Masindi, Unyoro, Uganda.

♂ ♀ (M. C. Z. 39216–7) Budongo Forest, U. 25. xi. 38.

Discussion. These two gerbils, taken at Bisu about twenty miles west of the type locality, are immature with the last molars not fully erupted. In their blackish backs and ears they contrast sharply in color with the more buffy *T. ruwenzorii.* The claws, though actually pale horn color, appear black with the caked earth in which they must have burrowed.

Tatera ruwenzorii Thomas & Wroughton

Tatera ruwenzorii Thomas & Wroughton, 1910, Trans. Zool. Soc. London, **19**, p. 500: Mokia, s.e. of Ruwenzori Mountains, Uganda, 3400 ft.

♂ (M.C.Z. 40793) Mabira Forest, U. 11. xi. 38.

Native name. Fukuzi (Luganda), usually applied to mole rats!

Discussion. The single specimen agrees closely with the original description in its broad interorbital region, long posterior palatal foramina, color and measurements. Wroughton found it "very numerous on the plains around the south end of Ruwenzori," while this example extends the recorded range slightly to the eastward.

Measurements. ♂. 182. 169. 35. 21 mm.

RHIZOMYIDAE

Tachyoryctes ruandae Lönnberg & Gyldenstolpe

Tachyoryctes ruandae Lönnberg & Gyldenstolpe, 1925, Arkiv Zool., **17**B, No. 5, p. 6: Mt. Muhavura, British Ruanda, Uganda.

4 ♂ 9 ♀ (M. C. Z. 39159, –61–72) Nyakabande, U. 27. i. 39.

1 ? 4 ♂ 7 ♀ (M. C. Z. 39160, –73–81, –95–6) Mushongero, U. 31. i. 39.

1 ♂ 2 ♀ (M. C. Z. 39152–4) Kisenyi, B. R. 9–11. ii. 39.

Native name. Fukuzi (Lukiga).

Discussion. The first two localities listed above lie a few miles to the north of the type locality. Though no mole rats were taken by Loveridge on Idjwi Island in Lake Kivu, the Museum has recently received a specimen from Nyangesi, 27 km. south of Costermansville, and a second from Kanyamundo, which must be very near to the

southwestern limits of the range of this genus. These two rats were collected by Messrs. D. M. Hodgson and W. F. Coultas.

Adults are russet above, the head nearly black, feet dusky, under surface dark slaty gray. The young are uniformly slaty gray with scattered pale-tipped hairs over the posterior part of the back; the russet fur first develops along the flanks and spreads upward toward the middle of the back. Seven of the thirty specimens have a small white area in the middle of the abdomen or lower chest. In *ruandae* the temporal ridges of adults unite in the sagittal line, thus differing from *ankoliae* in which there is said to be always a space of 2–3 mm. between them; however, in an adult female from Kisenyi, on the northeast shore of Lake Kivu, the ridges are well separated, though united in a second specimen from the same locality. The supposed greater size of *ruandae*, as compared with *ankoliae* of southern Uganda, probably does not hold, for while a few of the largest specimens measure in length of head and body, 203, 215, and even 231 mm., most of them are below 200 mm. given for the type of *ankoliae*.

Measurements. ♂. 231. 55. 27. 9 mm., ♀. 210. 73. 30. 29 mm., both from Nyakabande.

Parasites. Fleas (———— ————) were present on a Mushongero rat.

MURIDAE

Dendromus insignis kivu Thomas

Dendromus insignis kivu Thomas, 1916, Ann. Mag. Nat. Hist. (8), **12**, p. 242: Buhamba, Kivu region, Belgian Congo.

7 ♂ 15 ♀ 2 juv. (M. C. Z. 40767–90) Idjwi Id., B. C. 20. ii–3. iii. 39.

Native name. Shungwe (Lulega).

Discussion. Though but slightly marked, this seems to be a valid race with a distinctly narrower dorsal stripe, less broadly expanded over the shoulders than in the typical form, and with the under surface on the average slightly buffier. In size, however, there is probably little, if any, difference when sufficient series are compared. Of the present series, hardly half are adults.

Measurements. ♂. 85. 102. 17. 14 mm., ♀. 87. 95. 20. 13 mm.

Breeding. On February 21, an 82 mm. mother and her four young (of which a ♂ measured 47. 46. 13. 6 mm.) were brought in, the latter squeaking noisily though their eyes were unopened. The following day

an 85 mm. mother and three young (♂. 61. 77. 18. 10 mm., ♀. 62. 82. 18. 10 mm.) arrived, and several other litters on succeeding days.

Enemies. One recovered from the stomach of a snake (*Boaedon l. lineatus*).

Dendromus messorius ruddi Wroughton

Plate 4, fig. 1.

Dendromus ruddi Wroughton, 1910, Ann. Mag. Nat. Hist. (8), **5**, p. 275: Malikisi, Mt. Elgon, Kenya Colony.

5 ♂ 10 ♀ (M. C. Z. 39334–6, –8–42, 40812–8) Bundibugyo, U. 20–24. xii. 38.

1 ♀ (M. C. Z. 39337) Mihunga, Ruwenzori Mtns., U. 14. i. 39.

Native names. Kamampi (Luamba); *kuinji* (Lukonja); *mbeba wa irungu* (Lutoro).

Discussion. This series of sixteen specimens is of uniform appearance, long-tailed and white-bellied, hind foot about 18 mm. They agree so closely in proportions and in the rich tawny color of the back with *D. messorius* of the Cameroons, that there can be no doubt of their close relationship. The latter is slightly more richly colored with an ochraceous wash over the belly. Dr. R. T. Hatt (1940, p. 482), includes specimens from Medje and Niangara, eastern Congo, under typical *messorius*, which therefore ranges quite across the western and central forest area.

Measurements. ♂. 72. 91. 17. 12 mm., ♀. 77. 93. 17. 12 mm.

Breeding. On January 14, at Mihunga, a 65 mm. female was found with her nest, constructed of soft coarse grasses and lined with soft fine grasses and grass heads, measuring about 80 mm. in diameter. It contained three naked, blind nestlings measuring 35. 16. 6. 2.5 mm. The nest and young were subsequently photographed in a domestic banana, in which plant the nests are found most frequently.

On January 23, at Bugoye, eastern foot of Ruwenzori, a native brought in four young with their eyes open. We released these in southwestern Kigezi the following week.

Dendromus whytei pallescens Osgood

Dendromus whytei pallescens Osgood, 1910, Publ. Field Mus. Nat. Hist., Zool. Ser., **10**, p. 7: Lukenya, Ulukenya Hills, Kenya Colony.

♀ (M. C. Z. 38845) Mbanja, T. T. 29. iv. 39.

♀ (M. C. Z. 39059) Magrotto Mtn., T. T. 15. vii. 39.

Native names. Nkule (Kimakonde, but not even generic); *daa* (Kisambara).

Discussion. The Magrotto specimen is slightly paler than typical examples and has a faint indication of a dark dorsal stripe on the rump. The tail is shorter than in *D. m. ruddi:* 77 and 72 mm. respectively in these two females.

Measurements. ♀. 65. 77. 14. 11 mm., from Mbanja.

Breeding. On April 29, this 65 mm. female was brought in with a nest composed of fine grasses and a concealed elastic opening. The structure measured approximately 115 x 65 mm. (4½ x 2½ inches) and held seven naked nestlings. On July 15, a 62 mm. female had only four young, these were furred and their eyes already opened.

Captivity. As Magrotto Mountain, at 3000 feet, was quite a temperate climate, overclouded and with heavy precipitation during much of our stay, I attempted to take the four above-mentioned nestlings back to Europe. In the Red Sea, however, it was very hot—said to be 140° in the sun while we were at Port Sudan—and two of the mice succumbed. The remaining two, after staging brief escapes in the Paris-Bologne and London-Cardiff express, reached Glamorganshire safely. Cold weather apparently affected them but little, for my niece, to whom they were consigned, informs me that they passed the coldest fortnight of the exceptionally severe winter of 1939 in an unheated stone outhouse in Devonshire. However, during a cold spell in December, 1940, they both died one night without any other apparent cause.

In an attempt to tame them, they were handled as much as possible. To do so, however, it was necessary to entice them from their nest. This was resented at times, one used its teeth in protest, and as if seeking freedom from molestation, they built a new nest.

Their roomy cage held several branches, up and down which the active little creatures enjoyed exercising, balancing on the most slender terminal twigs, or hanging upside down from the roof of their cage while they tore off from it splinters of wood.

The food which was furnished them consisted of milk, honey, grapes, bananas, apples, monkey nuts, biscuits, crushed oats, sundry scraps, but principally parrot and canary seed, quantities of which they consumed, though all these foods appeared to be appreciated.

Thamnomys surdaster surdaster Thomas & Wroughton

Thamnomys surdaster Thomas & Wroughton, 1908, Proc. Zool. Soc. London, p. 550: Zomba, Nyasaland.

♂ ♀ (M. C. Z. 39054–5) Magrotto Mtn., T. T. 5. vii. 39.

Native name. *Kozo* (Kisambara).

Discussion. These specimens come from a point within twenty miles of the type locality of *T. usambarae*, apparently a synonym of *surdaster*. It might have been thought that coastal skins would have been identical also with the race *littoralis*, described from Mazeras, Kenya Colony, but the latter have nearly pure white feet, whereas in the Magrotto mice the metatarsal region of the feet is buffy.

Measurements. ♂. 117. 165. 24. 16 mm., ♀. 110. 145. 24. 12 mm.

Enemies. A halfgrown mouse was recovered from the stomach of a snake (*Boaedon l. lineatus*).

Thamnomys surdaster dryas Thomas

Thamnomys dryas Thomas, 1907, Ann. Mag. Nat. Hist. (7), **19**, p. 123: Mubuku Valley, Ruwenzori Mountains, Uganda, 6000–7000 ft.

2 ♀ (M. C. Z. 39202–3) Mihunga, U. 29. xii. 38–16. i. 39.
2 ♂ 1 ♀ (M. C. Z. 39247–9) Idjwi Id., B. C. 20. ii–3. iii. 39.

Native name. *Misisi* (Lulega).

Discussion. The Mihunga specimens are absolute topotypes, those from Lake Kivu, being somewhat immature, are doubtfully identical. They differ from typical *surdaster* in their slightly smaller (21 mm.) hind feet, their backs are a trifle darker, their skulls slightly smaller, which, however, may be due to immaturity, but the hindmost cusp of the last upper molar shows no distinct division into two by a median notch at the hinder end as is the condition in the two typical *surdaster* from Magrotto. As suggested by Dr. R. T. Hatt (1940, p. 539) in the case of one from the same locality, they perhaps represent intermediates between *T. s. dryas* and *T. s. surdaster*. In the former the pectoral pair of mammae is said to be absent, but this may vary individually. Nor is it clear that all are not best considered as races of *T. rutilans* of West Africa.

Measurements. ♀. 123. 142. 22. 16 mm., from Mihunga, Ruwenzori. ♂. 91. 114. 20. 10 mm., ♀. 92. 132. 21. 15 mm., both from Idjwi Id.

Thamnomys venustus venustus Thomas

Thamnomys venustus Thomas, 1907, Ann. Mag. Nat. Hist. (7), **19**, p. 122: Mubuku Valley, Ruwenzori Mountains, Uganda, [1]6000 ft.

♂ (M. C. Z. 39201) Mihunga swamp, U. 18. i. 39.

Discussion. This again is topotypical.

Measurements. ♂. 155. 205. 25. 23 mm.

[1] Given as 6000 ft. in original, 8000 ft. in Trans. Zool. Soc. London, 1919, p. 508.

THAMNOMYS VENUSTUS KIVUENSIS subsp. nov.

Type. Museum of Comparative Zoölogy, No. 39151, an adult female, skin and skull, from Upper Mulinga, Idjwi Island, Lake Kivu, Belgian Congo, collected by Arthur Loveridge, March 2, 1939.

Description. Similar in size, proportions, and tooth characters to typical *venustus* from Ruwenzori, but with the prevailing tint of the dorsal surfaces of the body much duller, warm buff to ochraceous buff instead of 'ochraceous tawny' as in the latter.

Pelage long and silky, hairs of the back about 17 mm. long, slaty in their basal four-fifths, tipped with ochraceous buff and mixed with scattered all-black hairs. Sides of the face and upper part of forearms clearer, more intense ochraceous; flanks paler than back, with few black hairs, the color passing gradually into that of the ventral side, which from chin to anus is dull whitish, faintly washed with buffy at the tips of the hairs, the basal half or so slaty; anal region clearer ochraceous buff. Ears nearly naked, their substance pigmented a dark brown, with scattered short brown hairs externally, ochraceous internally. Fore feet with metacarpal area dark brown, toes whitish; hind feet ochraceous buff, clear, except at the bases of the toes, which are clouded with dusky. Tail much longer than head and body, dark blackish brown all around, the hair of the basal two-thirds short, dark and close, becoming longer in the terminal third to form a thin tuft.

Skull quite like that of *T. venustus*, with the postero-internal cusp of all three upper molars well developed and as large as the two in front of it. Each upper molar, therefore, has three sub-equal elongate cusps on the lingual side, while on the labial side molars 1 and 2 have each four small cusps of which the posteriormost is the smallest.

Measurements. The collector's measurements are: head and body, 145 mm.; tail, 173; hind foot (s. u.), 26; ear, 18. The skull is crushed but shows the following: upper molar row, 6 mm.; diastema, 8.8; width outside first molars, 6.1; breadth of brain case, 13.8; mandible from condyle to tip of incisor, 19.6.

Remarks. The tree rats of this group are difficult to secure; seldom more than one or two occur in even larger collections, while the smaller forms, such as *T. surdaster*, seem commoner or at least easier to trap. Although no others were secured in the Kivu region, the duller, less intense coloring of the single specimen as compared with those from Ruwenzori is paralleled by a similar less-intense coloring in the representative forms of *Dendromus insignis* and *Leggada bufo* of these areas, and hence is probably significant. The Museum of Comparative Zoöl-

ogy has an example of typical *venustus* from Kibati, southeastern base of Mt. Niragongo, Kivu volcanoes, so that its distribution probably extends from Ruwenzori south to this range, while still farther southward beyond these mountains the duller race here described is found.

Habits. At dusk each evening I observed this animal descending a vine in the dense tangle of secondary forest immediately behind my tent. Baiting a snap-back rat trap with a scrap of pawpaw fruit, I set it on the vine at a height of about six feet from the ground and was successful in securing the rat.

Oenomys hypoxanthus unyori (Thomas)

Mus hypoxanthus unyori Thomas, 1903, Ann. Mag. Nat. Hist. (7), **12**, p. 342: [1]Fadjas, on Victoria Nile, Unyoro, Uganda.

♀ (M. C. Z. 39289) Bundibugyo, U. 20. xii. 38.

Native name. Ndoga (Luamba); *nsisa* (Lutoro).

Discussion. In this specimen the midventral area is pure white with a buffy line along the lateral border. The distinction between this form and *Oe. h. bacchante,* described from Nandi, Kenya Colony, does not seem well founded, and Hollister doubts if *editus* is really distinguishable from *unyori.*

Measurements. ♀. 140. 180. 27. 19 mm.

Oenomys hypoxanthus editus Thomas & Wroughton

Oenomys bacchante editus Thomas & Wroughton, 1910, Trans. Zool. Soc. London, **19**, p. 509: Mubuku Valley, Ruwenzori Mountains, Uganda, 6000 ft.

♂ (M. C. Z. 40830) Mihunga, Ruwenzori Mtns., U. 14. i. 39.
♂ (M. C. Z. 39144) Kisenyi, Lake Kivu, B. R. 10. ii. 39.
3 ♀ (M. C. Z. 39142–3, 40744) Idjwi Id., B. C. 20–23. ii. 39.

Native names. Mbutu (Lukonjo); *nsisa* (Lutoro).

Discussion. The Lake Kivu specimens agree closely with the topotypical Ruwenzori rat representing the race *editus,* in having the under surface of the body heavily washed with ochraceous, except for the axillae and groins, which are white. In typical *Oe. h. hypoxanthus,* from the Cameroons, the lower surface is tinted faintly, or not at all, with pale ochraceous while the fore part of the body above is more coarsely speckled with the same.

Measurements. ♂. 135. 140. 28. 18 mm., ♀. 170. 200. 33. 21 mm., from Kisenyi and Idjwi, respectively.

[1] Fajao, Murchison Falls, Victoria Nile.

Breeding. On February 23, a 166 mm. female was taken with her three blind nestlings, one of which (M. C. Z. 40744), a ♀, measured 70. 50. 17. 7 mm.

Diet. Two were trapped with bread bait, one by its tail; unfortunately a sixth was destroyed by some other rat eating out its brains as it lay dead in the trap.

Rattus rattus kijabius (Allen)

Mus kijabius J. A. Allen, 1909, Bull. Amer. Mus. Nat. Hist., **26**, p. 169: Kijabe, Kenya Colony.

1 ♂ 1 ♀ (M. C. Z. 39208, 40837) Isungo, near Kibale Forest, U. 14. xii. 38.
1 ♀ (M. C. Z. 39290) Bundibugyo, Bwamba region, U. 20. xii. 38.
1 ♂ 2 ♀ (M. C. Z. 40834–6) Mihunga, Ruwenzori Mtns., U. 4. i. 39.
2 ♀ (M. C. Z. 39209–10) Nyakabande, Kigezi, U. 28. i. 39.
2 ♂ 1 ♀ (M. C. Z. 39155–7) Idjwi Id., Lake Kivu, B. R. 17. ii. 39.
1 ♂ (M. C. Z. 38873) Kitaya, Ruvuma River, T. T. 30. iii. 39.

Seen also at Mushongero, Kisenyi, Ujiji, and Magrotto Mountain.

Native names. Mpanya[1] (Lukonjo and Lutoro); *mbeba* (Lukiga and Lulega); *nkulc* (Kimakonde); *likoswe* (Kiyao); *ngoshwe* (Kisambara).

Discussion. This is the common house rat of eastern Africa, abundant in all the native villages, but whether or not it is an introduction from India, or a local race indigenous to this part of Africa, is at present obscure, though the latter alternative seems likely. Immature animals have the entire lower surface slaty gray, often with a faint tinge of buffy; the lower side has more buff-ringed hairs, producing in adults a mixed black and buff effect.

Measurements. ♂. 155. 185. 31. 21 mm., ♀. 180. 213. 32. 23 mm., from Idjwi and Mihunga, respectively.

Diet. Feeding in a mahoga garden at Mihunga.

Enemies. A full-grown rat occupied the entire stomach of an owl (*Bubo a. africanus*) shot at Magrotto. A very large male, measuring 350 (190 + 160) mm., and two half-grown rats, in the stomachs of house snakes (*Boaedon l. lineatus*) at Ujiji, Fort Portal and Magrotto; four very large ones in Gaboon vipers (*Bitis gabonica*) at Budongo and Magrotto, three in nose-horned vipers (*B. nasicornis*) at Mabira and on Idjwi Island. Four furred nestlings in a cobra (*Naja n. nigricollis*) killed in an Indian store at Kitaya.

[1] This is the Kiswahili name for this recent immigrant; the Uganda Education Department informs me that *Nsolima* is more correct for Lukonjo and Lutoro.

Remarks. Woosnam remarked that the Ruwenzori Expedition failed to find this rat on the mountain in 1905–6. Now, in 1939, it is plentiful about the native huts in the Mubuku Valley at 6000 feet, and it remains to be seen what effect it will have on the numerous kinds of smaller rodents occurring in the vicinity.

Aethomys kaiseri hindei (Thomas)

Mus hindei Thomas, 1902, Ann. Mag. Nat. Hist. (7), **9**, p. 219: Machakos, Kenya Colony.

2 ♂ 3 ♀ (M. C. Z. 39056, –132–4, –6) Amboni Estate, T. T. 19. vi. 39.

1 ♂ 6 ♀ (M. C. Z. 39126–31, –5) Magrotto Mountain, T. T. 15–17. vii. 39.

Native name. Sase (Kisambara).

Discussion. On account of its shorter pelage, as compared with *Ae. k. norae* of northern Kenya Colony, the black hairs scattered numerously throughout the dorsal pelage produce less of a lined than a minutely peppered effect. The relatively shorter tails are, as Hollister pointed out, an obvious characteristic. Based on field measurements, the tail averages 83% of the head-and-body length (extremes 71 to 90).

Measurements. ♂. 163. 117. 29. ?20 mm., ♀. 175. 153. 23. 20 mm., both from Magrotto.

Breeding. On June 19, a 155 mm. female, dislodged by a tractor engaged in spreading piles of decaying vegetation, ran from it dragging after her three large young, attached to her nipples. One of these, a ♂, measuring 70. 50. 15. 8 mm., was made into a skin (M. C. Z. 39056), the two others were preserved in alcohol. I had been told previously that for females to carry their young in this fashion was a common practice of rats in this neighbourhood On the peculiar forked tip of the incisors in the young, see Lawrence (1941.)

Enemies. The native youngster who brought me the big series on March 17, was surprised and pleased at my buying the lot, exclaiming: "I have erred in leaving four at my house. Do you want them too?" I replied in the affirmative, provided that they were undamaged. "I will fetch them at once, but it is a long way," said he, departing in haste. Later, he found me frogging in a marsh and proffered his shirt-skirt full of fowl's eggs. "But where are the rats?" I asked. Instead of replying to me in Kiswahili, he spoke rapidly in Kisambara to my local gunbearer, as if uncertain whether it would be good form to tell me the truth! "What does he say?" I enquired. "He says," replied the man,

"that when he got home he found the children had toasted them, skins and all, and eaten them." Lest anyone, with different tastes, should suppose that this reflected poverty, I might add that the picanninies on Magrotto Estate were exceptionally plump through feeding on the oil-palm nuts along with the civets, squirrels, rats, vultures, crows and other creatures.

Praomys jacksoni montis (Thomas & Wroughton)

Mus jacksoni montis Thomas & Wroughton, 1910, Trans. Zool. Soc. London, **19**, p. 503: Mubuku Valley, Ruwenzori Mountains, Uganda, 6000 ft.

2 ♀ (M. C. Z. 39232, 39329) Kibale Forest, U. 10. xii. 38.
1 ♂ (M. C. Z. 40797) Bundibugyo. U. 20. xii. 38.
3 ♂ 1 ♀ (M. C. Z. 39235–6, 39326, 40819) Mubuku V., U. 3–6. i. 39.
2 ♂ 6 ♀ (M. C. Z. 39233–4, –7–8, 39327, –30–32) Mihunga, U. 14–22. i. 39.
4 ♂ 4 ♀ (M. C. Z. 39150, 39240–44, –46, 40734) Idjwi Id., B. C. 24. ii–2. iii. 39.

Native names. Mbule (Lukonja); *udiakiru* (Lutoro); *sisisi* (Lulega).

Discussion. The series from Idjwi Island seems identical with the topotypes from Ruwenzori. One large 135 mm. (head and body) female has a skull with condylobasal length of 30.5 mm. The tipping of the dorsal hairs in adults is pale ochraceous instead of the brighter cinnamon of typical *jacksoni*. Two from Kibale forest are in the bright cinnamon pelage, rather brighter in tint than M.C.Z. 39232, the only one of the Ruwenzori series in this phase.

Measurements. ♂. 160. 172. 30. 18 mm., ♀. 135. 160. 26. 17 mm., from Mihunga and Idjwi, respectively.

Diet. Trapped with cheese.

Breeding. On February 24, the large female, mentioned above, was brought in together with two, still blind, nestling males measuring 68. 62. 17. 9 mm.

Enemies. Six two-thirds grown young in the stomach of a mamba (*Dendroaspis j. kaimosae*).

Praomys taitae (Heller)

Epimys taitae Heller, 1912, Smithsonian Misc. Coll., **59**, No. 16, p. 9: Mt. Mbololo, Teita Hills, Kenya Colony, 5000 feet.

♂ (M. C. Z. 39057) Magrotto Mtn., T. T. 11. vii. 39.

Native name. Hunju (Kisambara).

Discussion. Compared with topotypes obtained by Loveridge in 1934. It is interesting to note that the present specimen was obtained under closely similar habitat conditions.

Measurements. ♂. 102. 111. 23. 18 mm.

Habitat. Noticing a burrow between the buttress roots of a huge tree in the heart of the forest, I ordered the gunbearers to dig. At eighteen inches or thereabouts below the surface the burrow, which had sloped steeply downwards to this point, turned upwards and divided into two short passages. One held a loose assemblage of dry leaves in a fragmentary state in which this rat was hiding, the other was a blind passage.

HYLOMYSCUS DENNIAE DENNIAE (Thomas)

Mus denniae Thomas, 1906, Ann. Mag. Nat. Hist. (7), **18**, p. 144: Mubuku Valley, Ruwenzori Mountains, Uganda, 7000 feet.

♂ (M. C. Z. 39328) Mubuku Valley, U. 6. i. 39.

Discussion. This single topotype, also taken at 7000 feet, was the only one obtained by Loveridge during his week at Mubuku camp, though R. B. Woosnam found it "extremely common" at the same spot in 1906.

HYLOMYSCUS CARILLUS SCHOUTEDENI (Dollman)

Epimys schoutedeni Dollman, 1914, Revue Zool. Africaine, **4**, p. 82: Mambaka, Belgian Congo.

2 ♀ (M. C. Z. 39239, 39245) Idjwi Id., B. C. 25. ii. 39.

Native name. Mtumhabuva (Lulega).

Discussion. An adult female and its two-thirds grown young are referred to the form *schoutedeni*, which Dr. Hatt (1940, p. 537) regards as a race of *carillus*. It is much brighter tawny above than *H. d. denniae* and its races, or than *H. a. weileri*, has 1—2=6 mammae, a tail slightly pencilled, hind feet with a slight clouding of darker at the base of the toes but without dark tarsal mark. The edges of the frontal are strongly beaded, with a minutely projecting point just in advance of the parietal. The immature specimen is dark, with only a sprinkling of minute tawny tips, especially on the head, and very dark metatarsal area and white toes. This identification, if correct, carries the range eastward to the extreme edge of the Congo region.

Measurements. ♀. 100. 137. 19. 16 mm., ♀ yng. 80. 100. 17. 14 mm.

Breeding. Taken from a large, loose nest constructed of strips of dry banana-leaf, built in a bunch of wild banana fruit that was hanging upside down. A second young one escaped.

Mastomys coucha ugandae (De Winton)

Mus ugandae De Winton, 1897, Ann. Mag. Nat. Hist. (6), **20**, p. 317: Entebbe, Uganda.

♀ (M. C. Z. 40831) Isunga, near Kibale Forest, U. 14. xii. 38.
5 ♂ 3 ♀ (M. C. Z. 39319–25, 39333) Bundibugyo, U. 20. xii. 38.

Native name. *Bandugi* (Luamba); *ndiakiru* (Lutoro).

Measurements. ♂. 155. 87+. 25. 17 mm., ♀. 145. 120. 27. 18 mm. Both from Bundibugyo.

Mastomys coucha durumae (Heller)

Epimys coucha durumae Heller, 1912, Smithsonian Misc. Coll., **59**, No. 16, p. 9; Mazeras, Kenya Colony.

4 ♂ 3 ♀ (M. C. Z. 39120–5, 39137) Magrotto Mtn., T. T. 10–17. vii. 39.

Native name. *Shishe* (Kisambara).

Discussion. This is a poorly marked race of the hot coastal strip of southeastern Kenya Colony, ranging into the adjacent Tanganyika Territory for an undetermined distance. It is slightly grayer and less brownish than the earlier-described *hildebrandtii* of the Teita Hills region. Externally it much resembles immature examples of the race of *Aethomys kaiseri* occurring in the same region, but is easily distinguished by its shorter and more slender foot, about 25 mm. with claw, and by its somewhat closer pelage. The longer, slit-like incisive foramina at once distinguish the skull.

Measurements. ♂. 145. 126. 22. 19 mm., ♀. 120. 105. 22. 18 mm.

Enemies. Three rats, apparently of this species, recovered from the stomach of a viper (*Bitis gabonica*) killed close to the spot where this series was trapped.

Habitat. Trapped at the edge of a swamp in a valley on the mountain. Two others trapped, had their skulls eaten out by other rats.

Mastomys coucha microdon (Peters)

Mus microdon Peters, 1852, Reise nach Mossambique, Säugeth., p. 149, pl. xxxv, figs. 5–6, pl. xxxvi, fig. 1: Tette & Boror, Mozambique.

♂ (M. C. Z. 38841) Kitaya, T. T. 28. iii. 39.
♀ (M. C. Z. 38874) Mbanja, T. T. 27. iv. 39.

Native names. *Chikukumula* (Kimakonde at Kitaya); *nkule* (Kimakonde at Mbanja).

Discussion. A somewhat paler race than *M. c. ugandae.*

Measurements. ♂. 140. 110. 24. 16 mm., ♀. 122. 107. 22. 18 mm.

Breeding. On April 27, the female held fifteen small embryos (preserved).

Habitat. The male was taken in a depression, lined with a few grasses, beneath a pile of weeds at the edge of a rice swamp — an extremely damp situation.

Leggada bufo bufo Thomas

Leggada bufo Thomas, 1906, Ann. Mag. Nat. Hist. (7), **18**, p. 145: Mubuku Valley, Ruwenzori Mountains, Uganda, 6000 feet.

2 ♂ 4 ♀ (M. C. Z. 40820–2, –4–5, –8) Mihunga, U. 12–18. i. 39.

Native name. Kienje (Lukonjo).

Discussion. These small orange-bellied mice are topotypes. In youngish specimens the color of the belly is much duller than in the adults, gray with a wash of ochraceous.

Measurements. ♂. 85. 61. 15. 11 mm., ♀. 85. 70. 16. 12 mm.

Leggada bufo ablutus subsp. nov.

Type. Museum of Comparative Zoölogy, No. 40745, an adult male, skin and skull, from Upper Mulinga, Idjwi Island, Lake Kivu, Belgian Congo, collected by Arthur Loveridge, February 24, 1939.

Description. Like typical *L. bufo* of Ruwenzori, but distinguished from it by its slightly less-dark dorsal coloring and by its paler under surface in which the gray-based hairs from chin to root of tail have a subterminal ring of whitish and a tip of bright ochraceous buff, producing a wash of this tint rather than the richer 'ochraceous orange' of *bufo.*

The general color above is a uniform mixture of black, finely punctate with orange, hardly darker in the center of the back, but slightly less dark on cheeks and forehead; no subauricular spot and no eye-ring; ears blackish brown, nearly naked; tail blackish above, paler below, minutely haired. Fore feet pale or slightly darkened on the metacarpal area; hind feet similar.

The skull does not differ from that of typical *bufo.* Upper incisors very slightly notched; incisive foramina long, extending back to about the anterior third of the first molar; masseteric knob prominent. First upper molar with three outer and two inner cusps, of which the

antero-external one is small; the antero-internal cusp much behind the transverse level of the former.

Measurements. The collector's measurements of the type and an adult female paratype, respectively, are: head and body, 90, 86 mm.; tail, 70, 75; hind foot, 16, 15; ear, 11, 12. The skull of the type measures: greatest length, 22.0 mm.; basal length, 17.6; palatal length, 10.4; zygomatic width, 10.0; mastoid width, 9.2; width across molars, 4.9.

Remarks. The three adult specimens (M. C. Z. 40745–7) from Lake Kivu are so noticeably paler below than the topotypes of *L. b. bufo* that they seem to represent a local form worth recognition. A similar paling out in color is seen in some other local representatives of small mammals as compared with Ruwenzori specimens, as for example *Dendromus insignis kivu.*

Native name. Muhushushu (Lulega). Despite the similarity in the Lulega names for this small rodent and for the shrews, I was assured that the difference in pronunciation had been correctly transcribed.

Leggada grata grata Thomas & Wroughton

Leggada grata Thomas & Wroughton, 1910, Trans. Zool. Soc. London, **19**, p. 507: Mubuku Valley, Ruwenzori Mountains, Uganda, 6000 ft.

♀ (M. C. Z. 40826) Mihunga, U. 12. i. 39.
♀ (M. C. Z. 40827) Nyakabande, U. 2. i. 39.
6 ♂ 9 ♀ (M. C. Z. 40748–62) Idjwi Id., B. C. 18. ii–3. iii. 39.

Native name. Mpiongo (Lulega).

Discussion. The specimen from Mihunga, Ruwenzori, is topotypic of this species, and though slightly darker above than the Kivu series, perhaps owes this difference to its immaturity. In immature specimens the buffy line at the edge of the belly is not developed.

Measurements. ♂. 78. 57. 13. 10 mm., ♀. 75. 55. 12. 9 mm., both from Idjwi.

Breeding. On February 20, a 75 mm. female was found in her nest of dry grass beneath a heap of garden rubbish. The four young present had their eyes closed, and consisted of a ♂. 43. 33. 11. 5 mm., and three females 43. 35. 11. 5 mm. (preserved).

Enemies. Two recovered from the stomach of a mamba (*Dendroaspis j. kaimosae*) on Idjwi, and two from vipers (*Atheris nitschei*) on Ruwenzori and Idjwi, respectively.

Leggada bella vicina Thomas

Leggada bella vicina Thomas, 1910, Ann. Mag. Nat. Hist. (8), **5**, p. 88: Takaungu, near Mombasa, Kenya Colony.

1 ♂ 2 ♀ (M. C. Z. 38861, 38864–5) Kitaya, Rovuma R., T. T. 29. iii. 39.

1 ♂ 3 ♀ (M. C. Z. 38847–8, 38862–3) Mikindani, T. T. 17–19. iv. 39.

1 ♂ 1 ♀ (M. C. Z. 38846, 38880) Mbanja, near Lindi, T. T. 27. iv. 39.

2 ♂ (M. C. Z. 38866–7) Mainland opp. Kilindini, K. C. 25. vii. 39.

Native names. *Chanile* (Kimakonde at Kitaya); *ngorpo* (Kimakonde at Mbanja); *irutu* (Kimwera).

Discussion. No difference appears between topotypical skins from near Mombasa and those of the southeastern part of Tanganyika. There is some individual variation in the amount of darkening of the back and the intensity of the ochraceous on the sides, partly it seems, a matter of age.

Measurements. ♂. 68. 42. 12. 11 mm., ♀. 68. 46. 12. 10 mm., from opposite Kilindini, and Kitaya, respectively.

Breeding. On March 29, two nests, comprised of a loose assemblage of fine grasses without any lining, were found on the ground beneath piles of (i) thatching grass, (ii) weeds. In addition to the mother mice, they held litters (preserved) consisting of blind and naked nestlings of a very raw red hue, and numbering eight and three respectively.

On April 17, a loosely built nest measuring about 100 mm. (*circa* 4 inches) in diameter, constructed of finely shredded outer leaves of maize, was found on the ground beneath a pile of discarded corncobs and their husks. In addition to the 66 mm. mother, it held seven naked nestlings (preserved), one of which measured *circa* 37. 24. 6. 3 mm.

On April 19, a 67 mm. female held seven fetuses (preserved).

On April 27, a litter consisting of six naked nestlings (preserved) was found.

Diet. Finely masticated maize found in stomach of one mouse.

Enemies. An adult in the stomach of a snake (*Boaedon l. lineatus*) at Kitaya; three large and one small nestling in a burrowing viper (*Atractaspis bibronii*) at Mbanja.

Cricetomys gambianus proparator Wroughton

Cricetomys gambianus proparator Wroughton, 1910, Ann. Mag. Nat. Hist. (8) **5**, p. 107: Mubuku Valley, Ruwenzori Mountains, Uganda, 6000 ft.

1 ♀ (M. C. Z. 40792) Mabira Forest, U. 16. xi. 38.
3 ♂ (M. C. Z. 39420–2) Bundibugyo, U. 20. xii. 38.
1 ♀ (M. C. Z. 39419) Mihunga, U. 13. i. 39.

Native names. Kayozi (Luganda); *msumba* (Luamba and Lutoro); *isisa* not *chicha* (Lukonjo).

Discussion. The specimen from Mihunga is topotypical of *proparator*, dark above, white below, the fore feet white-toed, the hind feet dark with paler toes, tail dark in its basal third. The specimen from Mabira is practically identical with it but has the chest slightly clouded with gray. The three Bundibugyo specimens are slightly more buffy than *proparator*, and are not very different from topotypes of *elgonis*. In one the under side is all white, in another the chest is marked with gray, while in the third the entire lower surface is gray. In their fore feet the condition varies individually from white-toed to having the entire foot white, the hind toes are white and the tails about one-half white.

Dr. R. T. Hatt (1940, p. 493) has remarked at length on the variation shown by these giant rats, especially in the regions where forest and savannah habitats meet or overlap, and on the difficulty of assigning individual specimens to a given race. Without sufficiently representative series it is almost impossible to find sharply delimiting characters for local races. Nevertheless he finds those of the Congo forest rather sharply marked off from those of the eastern savannah, so that he regards them as specifically distinct under the name of *C. dissimilis* (misspelled *dissimulus*). Probably the explanation is that the savannah forms with their clouded bellies and paler, more ochraceous pelage, mingle with the white-bellied, darker-backed forest forms along the eastern outposts of the central forest area, especially where the latter is gradually being driven back so that on the borders of the two habitats the differences become less clear, and the characters more or less intermediate. The case is perhaps somewhat paralleled by those of the forest and savannah elephants, the dwarf and Cape buffaloes, and others, which seem to be pairs of forms living typically either in the forest or in the open country, but due to lack of any but environmental barriers are not yet completely segregated as distinct species. It becomes then a matter of opinion whether to regard them as distinct species or as representative forms of a single species.

Measurements. ♂. 390. 430. 65. 46 mm., ♀. 320. 370. 71. 42 mm., from Bundibugyo and Mihunga, respectively.

Parasites. Hemimerids (————— —————) in fur of the Mabira and Bundibugyo rats, but only a tick (Ixodes rasus) on the Mihunga specimen.

Cricetomys gambianus osgoodi Heller

Cricetomys gambianus osgoodi Heller, 1912, Smithsonian Misc. Coll., **59**, No. 16, p. 16: Mazeras, Kenya Colony.

♂ (M. C. Z. 39423) Nchingidi, T. T. 19. v. 39.

Discussion. This specimen agrees precisely with the characters pointed out by Heller. The mesopterygoid fossa of the skull is narrow and parallel-sided, the bullae are small, and the zygomata are obviously more bowed than in the Uganda specimens; skull length, 72 mm. Compared with the races *proparator* and *elgonis*, the dorsal coloring is buffier, belly clear white, fore feet pale, no light area at the anterior base of the ear.

Lophuromys aquilus aquilus (True)

Mus aquilus True, 1892, Proc. U. S. Nat. Mus., **15**, p. 460, fig. 1: Mt. Kilimanjaro, Tanganyika Territory, 8000 feet.

1 ♂ 2 ♀ (M. C. Z. 39061–3) Magrotto Mtn., T. T. 14–16. vii. 39.

Native name. *Vusu* (Kisambara).

Discussion. In a previous report (1936, p. 99), with an extensive series of material from Mt. Elgon, it was considered that *rubecula* Dollman, described from Elgonyi, Mt. Elgon, was unrecognizable from the nominate form. The three specimens listed above are slightly less dark above, redder on the sides, and pinker on the belly than those from Ruwenzori and Lake Kivu listed below.

Measurements. ♂. 145. 80. 21. 18 mm., ♀. 144. ?. 22. 18 mm.

Breeding. On July 14, a female held four very small embryos (preserved).

Diet. Palm-oil nut and other matter in one stomach.

Enemics. No parasites, but note loss of tail by both females!

Lophuromys aquilus (subsp.)

♂ (M. C. Z. 39223) Budongo Forest, U. 28. xi. 38.

Discussion. This skin is almost without darkening of black hairs dorsally, but is evenly punctate with black and ochraceous, paler even than the race *zena*, while the belly is pure pinkish ochraceous.

Measurements. ♂. 135. 65. 19. 16 mm.

Diet. Trapped with bread as bait.

Lophuromys aquilus laticeps Thomas & Wroughton

Plate 5, fig. 2.

Lophuromys laticeps Thomas & Wroughton, 1907, Ann. Mag. Nat. Hist. (7), **19**, p. 383: Lake Kivu, Belgian Congo.

1 ♂ 1 ♀ (M. C. Z. 40798–9) Mabira Forest, U. 9 & 17. xi. 38.
1 ♂ juv. (M. C. Z. 39318) Bundibugyo, U. 20. xii. 38.
4 ♂ 3 ♀ (M. C. Z. 39220, 39312–7) Mihunga, U. 10–19. i. 39.
2 ♂ (M. C. Z. 39221–2) Nyakabande, U. 27. i. 39.
1 ♂ 3 ♀ (M. C. Z. 39250–3) Kisenyi, B. R. 10. ii. 39.
7 ♂ 6 ♀ (M. C. Z. 39254–66) Idjwi Id., B. C. 18. ii–3. iii. 39.

Native names. Adulo (Luamba); *kihukuzi* (Lutoro); *kisuhura* (Lukonjo); *ichumba* (Lulega).

Discussion. Individual variation is so great that races of *aquilus* are somewhat questionable, young ones are brighter reddish below than most adults so that the appearance of a series depends to some extent on the average age. The Kisenyi and Idjwi series may be considered topotypic of *laticeps*, to which Hatt assigns his Kisenyi material. Our four specimens from Kisenyi, on the north shore of the lake, are a trifle more ochraceous tawny on the under surface than the Idjwi series in which the tips of the belly hairs are tawny olive, and so short that the pale-gray bases show through, giving a gray-speckled appearance; a few individuals in the Idjwi series, however, are indistinguishable from those of Kisenyi. Apparently, to judge by his map, Hatt would apply the name *rubecula* (discussed above) to the rats of Ruwenzori; it appears impossible, however, to separate our seven Mihunga, Ruwenzori, from the Kivu material. The Ruwenzori series is very dark above, with minute speckling, and buffy gray or bright orange-buff below. Thomas & Wroughton (1910, p. 512) referred their Ruwenzori material to *aquilus*, their single Kivu specimen to *laticeps*.

All are more ochraceous on flanks and shoulders, less blackish on the back, than specimens from Kisiki, Belgian Congo, representing *L. a. rita*, towards which they are perhaps a transitional form.

Measurements. ♂. 141. 82. 20. 16 mm., ♀. 138. 81. 19. 16 mm. Both from Idjwi.

Breeding. In late February, a female held three fetuses *circa* 43 mm. from snout to anus. On March 3, I found a nest constructed of fine grass and large dry leaves, in a spacious cavity formed by the decaying roots of a large tree, which was situated in a small patch of forest. The nest held a 120 mm. female and a younger ♀. 100. 53. 23. 13 mm., which was photographed, vide pl. 5, fig. 2.

Diet. Taken with meat bait.

Parasites. The male from Mabira, like Arvicanthis in the same locality, had numerous scars upon its back as if it had been parasitized by Tumbo fly. Five small ants on a trapped male at Mihunga, behaved like fleas in its fur.

Enemies. On February 19, two new-born young in the stomach of a cobra (*Naja melanoleuca*) and four in that of a mamba (*Dendroaspis j. kaimosae*), two adults in another mamba, one in a viper (*Bitis nasicornis*) at Mabira.

Lophuromys woosnami woosnami Thomas

Lophuromys woosnami Thomas, 1906, Ann. Mag. Nat. Hist. (7), **18**, p. 146: Mubuku Valley, Ruwenzori Mountains, Uganda, 6000 ft.

♂ ♀ (M. C. Z. 39219, 39311) Mubuku Valley, U. 29. xii. 38–4. i. 39.
♀ (M. C. Z. 39218) Mihunga, Ruwenzori Mtns., U. 19. i. 39.

Discussion. In addition to the topotypes listed above, there is a third preserved in alcohol.

Measurements. ♂. 132. 113. 23. 20 mm., ♀. 120. 97. 26. 13 mm., both from Mubuku, latter in alcohol.

Habitat. The alcoholic specimen was trapped at 8 p.m. with cheese bait, the trap being set opposite its hole which was far beneath an overhanging rock in the heart of the forest. Footprints in the dust beneath the rock, attracted attention to the fact that the burrow was occupied.

Acomys wilsoni wilsoni Thomas

Acomys wilsoni Thomas, 1892, Ann. Mag. Nat. Hist. (6), **10**, p. 22: Mombasa, Kenya Colony.

♀ (M. C. Z. 38954) Siga Caves, near Tanga, T. T. 14. vi. 39.

Discussion. This specimen is darker on the back and brighter on the sides than a series of topotypes from Mombasa, but may be included within the range of individual variation.

Measurements. ♀. 90. 52. 10. 12 mm.

Habitat. Caught beneath palm fronds; its ears already in this ragged state.

Acomys ? albigena Heuglin

Acomys albigena Heuglin, 1877, Reise in Nordost-Afrika, **2**, p. 69: Bogos country, Eritrea.

♀ (M. C. Z. 39058) Magrotto Mtn., T. T. 16. vii. 39.

Native name. Kiberakandesi (Kisambara).

Discussion. The single specimen, lacking a tail when trapped, is only tentatively referred to this species. It agrees closely in its dark blackish median area and bright orange-ochraceous sides with a skin from Dembea, Ethiopia, supposed by Dr. W. H. Osgood to represent Heuglin's species, but is widely different from *A. ignitus*, which, from geographical considerations, it might be expected to be.

Measurements. ♀. 110. ?. 15. 15 mm.

Diet. Stomach contents was largely insect remains, mostly unidentifiable, but Dr. P. J. Darlington, who kindly examined them, detects both medium and small-sized beetles.

Dasymys bentleyae medius Thomas

Dasymys medius Thomas, 1906, Ann. Mag. Nat. Hist. (7), **18**, p. 143: Mubuku Valley, Ruwenzori Mountains, Uganda, 6000 ft.

2 ♂ 2 ♀ (M. C. Z. 39224–5, 40832–3) Mihunga, U. 13–17. i. 39.
1 ♀ (M. C. Z. 39149) Idjwi Id., L. Kivu, B. C. 3. iii. 39.

Native name. Chumba (Lulega).

Discussion. The Ruwenzori series is topotypic, and the Lake Kivu specimen is similar to them though with a slightly longer skull than any. We follow Hollister and Hatt in regarding *medius* as a race of *bentleyae.*

Measurements. ♂. 130. 123. 28. 21 mm., ♀. 155. 180. 30. 20 mm. Both from Mihunga, Ruwenzori, 6000 ft.

Breeding. On March 3, a 155 mm. female was suckling two young, of which the ♂ measured 57. 28. 11. 5 mm. (not kept).

Enemies. A large adult recovered from the stomach of a mamba (*Dendroaspis j. kaimosae*) on Idjwi.

Pelomys fallax concolor Heller

Pelomys fallax concolor Heller, 1912, Smithsonian Misc. Coll., **59**, No. 16, p. 13: Kiduha, Lake Mutanda, Uganda.

♂ (M. C. Z. 39146) Kisenyi, B. R. 11. ii. 39.
♂ ♀ (M. C. Z. 39145, 40743) Idjwi Id., B. C. 22. ii. 39.

Native name. Kinosa (Lulega).

Discussion. These three specimens, one (M. C. Z. 40743) of which is young, agree in lacking the dorsal black stripe and the white beneath the forearms and on the belly, as described by Heller, but the supposedly narrower nasals, longer tooth row, and incisive foramina as compared with *P. f. insignatus* do not hold and may have been due to comparison with a specimen of *Mylomys*. In this genus, the validity of which is questionable, the incisive foramina extend backward between the anterior ends of the first molars, instead of stopping on a line with their anterior roots.

Measurements. ♂. 182. 145. 30. 19 mm., ♀. 105. 85. 22. 15 mm., both from Idjwi.

Pelomys fallax insignatus Osgood

Pelomys fallax insignatus Osgood, 1910, Ann. Mag. Nat. Hist. (8), **5**, p. 276: Fort Hill, northern Nyasaland.

1 ♀ (M. C. Z. 38842) Nchingidi, T. T. 17. v. 39.
2 ♀ (M. C. Z. 38956–7) Magrotto Mtn., T. T. 17. vii. 39.

Native name. Mende (Kisambara).

Discussion. This race lacks the black dorsal stripe and has whitish-tipped hairs over the inguinal area and under surface of the forearms. In the youngest specimen (M. C. Z. 38957) there is a broad dark band in the mid-dorsal area where the yellow-ringed hairs have not yet come in. These specimens agree closely with one from Tukuyu, in the southwestern part of Tanganyika Territory, secured by Loveridge in 1930, and now extend the recorded range to the coastal area in northeastern Tanganyika.

Measurements. ♀. 158. 131. 28. 18 mm., from Magrotto Estate.

Arvicanthis abyssinicus nubilans Wroughton

Arvicanthus (sic) *abyssinicus nubilans* Wroughton, 1909, Ann. Mag. Nat. Hist. (8), **4**, p. 539: Kisumu, Kenya Colony.

3 ♂ 3 ♀ (M. C. Z. 40802–7) Mabira Forest, U. 12–19. xi. 38.
2 ♂ 3 ♀ (M. C. Z. 39226–8, –30–1) Budongo Forest, U. 25. xi. 38.
3 ♂ 5 ♀ (M. C. Z. 39291–8) Bundibugyo, U. 20. xii. 38.
1 ♂ (M. C. Z. 39229) Bugoye, U. 23. i. 39.
1 ♂ (M. C. Z. 39147) Nyakabande, U. 7. ii. 39.

Native names. *Mese* (Luganda); *Mbabu* (Luamba); *mbeba* (Lutoro).

Discussion. The series is uniform in color, with a faint buffy tinge over the shoulders, due to the pale-ochraceous subterminal bands on the hairs, deepening on the lower back to ochraceous. The dorsal black line is barely indicated, though traceable.

Measurements. ♂. 175. 135. 32. 21 mm., ♀. 160. 115. 28. 20 mm., both from Mabira.

Eremies. One Mabira female had lost a hind leg but the skin was completely healed.

Lemniscomys striatus massaicus (Pagenstecher)

Mus (*Lemniscomys*) *barbarus* L. var. *massaicus* Pagenstecher, 1885, Jahrb. Hamburg. Wiss. Anstalt, **2**, p. 45: Lake Naivasha and Nguruman, Kenya Colony.

2 ♂ (M. C. Z. 40800–1) Mabira Forest, U. 9. xi. 38.
1 ♂ 1 ♀ (M. C. Z. 39212,–302) Kibale Forest, U. 15. xii. 38.
2 ♂ 2 ♀ (M. C. Z. 39303–6) Bundibugyo, U. 20. xii. 38.
2 ♂ 1 ♀ (M. C. Z. 39211,–3,–301) Mihunga, U. 12–18. i. 39.
2 young (M. C. Z. 39214–5) Bugoye, U. 23. i. 39.

Native names. *Mende* (Luganda); *besi* (Luamba); *nyaruveri* (Lutoro); *lusense* (Lukonjo).

Discussion. The Ruwenzori skins tend to be decidedly more grayish on nape and flanks, lacking the ochraceous tint of the others. The length of the hind foot, without claws, in the dried skins of all these specimens, is uniformly 25–26 mm., hence none is referable to *L. m. macculus* of Mokia,[1] southeast of Ruwenzori, in which the foot is 21–23 mm.

Measurements. ♂. 130. 136. 26. 17 mm., ♀. 127. 130. 25. ?. mm., both from Mihunga.

[1] Mohokya, twenty miles south of Bugoye.

Breeding. On November 14, four nestlings (measuring 50. 35. 12. 5 mm.) were found by men engaged in clearing undergrowth at Mabira.

On December 15, a 125 mm. female held five small fetuses, at Kibale.

On December 20, a 122 mm. female held five small fetuses, at Bundibugyo.

On January 18, two blind nestlings were brought in at Mihunga.

On January 23, two young (measuring 64. 45. 15. 7 mm.), their eyes still unopened, were brought in at Bugoye.

On January 25, young were brought in, but not preserved, at Nyakabande.

Parasites. Mites (——— ———) and maggots (*Stasisia rodhaini*) removed from myiasis-infected rats at Mabira.

Otomys denti Thomas

Otomys denti Thomas, 1906, Ann. Mag. Nat. Hist. (7), **18**, p. 141: Mubuku Valley, Ruwenzori Mountains, Uganda, 6000 ft.

2 ♂ (M. C. Z. 39204–5) Mihunga, U. 4 & 18. i. 39.

Native names. *Kitwamusanzi* (Lukonjo); *kihukuzi* (Lutoro).

Discussion. These topotypes, having been taken at the Ruwenzori Expedition's (1905) camp, agree perfectly with Thomas's description in having the outer section of the lower incisors white, in having five laminae to the last upper molar, in their all-black tails, and under side darker, and with much less ochraceous speckling, than in *O. kempi.*

Measurements. ♂. 160. 95. 27. 21 mm.

Otomys kempi Dollman

Otomys kempi Dollman, 1915, Ann. Mag. Nat. Hist. (8), **15**, p. 152: Mt. Mikeno, Belgian Ruanda, 6000 feet.

2 ♂ (M. C. Z. 39299–300) Mabira Forest, U. 12 & 15. xi. 38.
1 ♂ (M. C. Z. 39206) Kibale Forest, Toro, U. 13. xii. 38.
1 ♀ (M. C. Z. 39148) Idjwi Id., L. Kivu, B. C. 3. iii. 39.

Discussion. These specimens add slightly to the recorded distribution, though Dollman has reported *kempi* from Buhamba, near Lake Kivu. The species is characterized by the possession of one groove on the lower incisor and six laminae to the last upper molar. Contrary to Dollman's account, however, the portion of the lower incisor external to the groove is not always white but is yellow in all four of the above

specimens, and the tails are distinctly pale beneath. The lower surface has the bases of the hairs less blackish and with longer, more abundant buffy tips than *O. denti*.

Measurements. ♂. 165. 75. 26. 20 mm., from Mabira.

BATHYERGIDAE

Cryptomys hottentotus whytei (Thomas)

Georychus whytei Thomas, 1897, Proc. Zool. Soc. London, p. 432: Karonga, Lake Nyasa, Nyasaland.

♂ (M. C. Z. 38955) Ujiji, T. T. 13. iii. 39.

Discussion. The single specimen is in very thin and much-worn pelage so that the true color characters are indeterminable, but shows four small white areas on the forehead. It agrees in its small foot and general cranial characters with specimens from southwestern Tanganyika, which we previously (1933, p. 124) referred to *C. h. whytei*. The premaxillaries slightly exceed the nasals in posterior extension, but do not approximate each other or close behind them as they do in the *occlusus* of Kigogo. In May 1930, on an earlier visit to Lake Tanganyika, Loveridge also obtained a solitary example of this species at Ujiji, which must be about the northern limit of its range.

Measurements. ♂. 145. 18. 19. 2 mm.

HYSTRICIDAE

Hystrix africaeaustralis ?subsp.

♂ (M. C. Z. 39407) Kitaya, T. T. 2. iv. 39.

Native names. Ndinu (Kiyao); *nungu* (Kimakonde).

Discussion. This is a young specimen with only the two anterior cheek teeth in place on each side, so that it offers no characters that would ensure its reference to any one of the four races named from Tanganyika Territory. In spite of its youth, the length of the frontals is more than half that of the nasals and twice the distance from the posterior edge of the frontals to the point of the occiput, thus agreeing with the adult *H. africaeaustralis*.

Measurements. ♂ juv. 320. 60. 60. 34 mm.

Enemies. This little creature with both fore and hind foot missing on the right side, though the stumps are entirely healed, was found in a maize shamba, and brought to me alive.

LEPORIDAE

Lepus capensis ?abbotti Hollister

Lepus capensis abbotti Hollister, 1918, Proc. Biol. Soc. Washington, **31**, p. 35: Plains east of Mt. Kilimanjaro, Tanganyika Territory.

♂ ♀ (M. C. Z. 38878–9) Mikindani, T. T. 15. iv. 39.

Frequently seen at night on the roads near Mbanja, near Lindi, T.T.

Native names. Chungula (Kimwera); *usungula* (Kimakonde at Kitaya); *uyungula* (Kimakonde at Mbanja).

Discussion. These two leverets are so young that they are referred to the race *abbotti* on geographical grounds only. As is usual in young hares, both have a prominent white blaze on the forehead.

Measurements. ♂ and ♀. 190. 25. 56. 47 mm. Though external dimensions of both were alike, the skull of the male was surprisingly larger than that of the female.

SUIDAE

Hylochoerus meinertzhageni meinertzhageni Thomas

Hylochoerus meinertzhageni Thomas, 1904, Nature (London), **70**, p. 577: Kakamega Forest, near Kaimosi, Kenya Colony (see Loveridge, A., in Allen, G. M., and Lawrence, B., 1936, Bull. Mus. Comp. Zoöl., **79**, p. 109).

2 skulls (M. C. Z. 39428–9) Nyinabitaba, U. 19. i. 39.

Habitat. Quite by accident, as we were packing up to leave the Ruwenzori Mountains, I learned that the Bakonjo were regularly killing giant forest hogs at Nyinabitaba, higher up the mountain above the Mubuku Valley. The skulls were prepared from heads which the hunters were carrying past our camp.

BOVIDAE

Cephalophus caerulus aequatorialis Matschie

Cephalolophus (sic) *aequatorialis* Matschie, 1892, Sitzb. Ges. Naturf. Freunde Berlin, p. 112: Chagwe, Uganda.

♀ (M. C. Z. 39405) Mabira Forest, Chagwe, U. 16. i. 38.
♀ (M. C. Z. 39406) Kibale Forest, Toro, U. 15. xii. 38.

Native names. Ntalaganiya (Luganda); *nendi* (Lutoro and Lukonjo).

Discussion. The topotype from Mabira has a small rudiment of a horn core at the posterior margin of each frontal. It still retains the milk premolars and the last permanent molar is nearly in place.

Measurements. ♀. 620. 100. 160. 52 mm., from Mubango, Mabira Forest.

Breeding. Neither of these blue forest duikers was pregnant.

Sylvicapra grimmia ?roosevelti Heller

Sylvicapra grimmia roosevelti Heller, 1912, Smithsonian Misc. Coll., **60**, No. 8, p. 9: Rhino Camp (former Lado Enclave), Uganda.

♂ juv. (M. C. Z. 39424) Bundibugyo, U. 20. xii. 38.

Native name. Abudi (Luamba).

Discussion. This is a very young duiker with milk dentition, consequently its subspecific identification with *roosevelti* is solely on geographical probabilities and remains uncertain.

Measurements. ♂. 350. 55. 142. 46 mm.

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